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LIVESTOCK FEED PROCUREMENT

DISCUSSION ON UTILIZATION OF FEED CONCENTRATES

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 12, Nov 82 pp 53-65

/Round table discussion: "On Development of Production and Increase in the Efficiency of Utilization of Concentrated Feed"

/Text/ P. A. Ignatovskiy (chief editor of the journal PLANOVOYE KHOZYAYSTVO):

We have to discuss the economic and social problems of development of sectors that largely predetermine the efficiency of production of livestock products.

The mixed feed and microbiological industry directly affects the economy of agriculture and in the future will determine to an ever greater extent the placement of livestock complexes, in the same way as is presently manifested with respect to poultry factories moved closer to the places of consumption of their products.

A balance of feed rations, especially for young stock, poultry, hogs and to some extent large-horned cattle will contribute to a reduction in the expenditures of concentrates, as well as in production costs. Right now it is obvious that the more protein is produced, the more mixed feed production will be oriented toward the processing of grain, as well as of the utilized industrial, agricultural and household waste. In particular, we have big deposits of timber industry waste in Siberia and it is important that they find their application.

On the whole, it is difficult to overestimate the sector's role in the accomplishment of the country's food program and in the attainment of its ultimate goals. We often say that, if the stock grows, the use of machines and mechanisms expands and manpower is enlisted, animal husbandry will develop, but attention is not always concentrated on the chief thing--increase in meat, milk and other products and reduction in their production costs. Without this it is difficult to attain an efficient utilization of feed and of all national labor in these sectors. Meanwhile, the volume of grain expenditure on feed purposes and the number of products of the microbiological industry received by agriculture grow, while, for example, the production of pork has not risen in the last 2 years. There is something to think about here. This is a very serious problem. The participation of skilled specialists in this round table discussion will help to formulate proposals concerning the development of the mixed feed and microbiological industry, distribution of material resources and an efficient placement of enterprises. Therefore, I ask that you express yourself as specifically and soundly as possible.

L. S. Stefanyuk (chief of a main administration of the USSR Ministry of Agriculture):

To increase the production of livestock products envisaged by the USSR Food Program, it will be necessary to greatly expand the output and to raise the efficiency of utilization of feed.

World experience and the practice of management in our country have demonstrated that concentrated feed can be used most effectively if it is balanced in nutritive and biologically active substances. Science has established that with the use of balanced mixed feed in animal husbandry it is possible to save no less than 15 to 20 percent of the concentrated feed. This amounts to approximately 25 to 30 million tons of grain. With the absolute growth of the volume of production of mixed feed its proportion in the total expenditure of concentrated feed in the public sector still comprises 50 percent. Therefore, 60 million tons of concentrated feed are not utilized efficiently--in the form of grain and the simplest feed mixtures.

The attained level of mixed feed production does not yet meet the needs of animal husbandry either qualitatively or quantitatively. The shortage of high-protein components and of biologically active substances, as well as the deficiency of production capacities, is the restraining factor in an increase in the output of mixed feed.

For the purpose of a more efficient utilization of feed resources in the country and a reduction in grain expenditure on feed for livestock it is necessary to revise the structure of sown areas toward an increase in leguminous and oil crops, lucerne, corn and so forth.

Taking into consideration that the actual value of grain used for feed purposes is determined by its energy level and the quality of protein, the following structure of the grain fodder balance is most desirable: barley, 35 to 40 percent; corn, 16 to 18 percent, leguminous crops, 12 to 15 percent and wheat, only 20 to 25 instead of 50 percent.

The industrial production of protein, the need for which is not met now, also plays an important role in a correct utilization of concentrated feed.

The USSR Ministry of Agriculture takes measures to change the structure of fodder grain and to sharply increase the production of leguminous crops. By 1985 the gross output of leguminous crops is to be increased to 12 or 14 million tons and by 1990, to 18 or 20 million tons and gross corn production, to 18 or 20 million tons. It is also advisable to produce more barley, rape and sunflower seeds.

Along with the utilization of high-protein plant raw materials and of raw materials of industrial production biologically active substances--vitamins, trace elements and other additives--play an important role in an improvement in the quality of concentrated feed. The consumption of these components has increased in the last few years. However, the need of animal husbandry for vitamins and trace elements is not met fully. The Ministry of Chemical Industry and the Ministry of Medical Industry are to carry out large-scale work in this area. Many mixed feed industry enterprises operate with obsolete low-productivity equipment and require reconstruction.

Sets of equipment of OTsK-4 and OTsK-8 automated mixed feed shops with weight batching and portion mixing of components of a productivity of 4 and 8 tons of mixed feed per hour have been developed for the introduction of advanced technology of production of mixed feed and feed additives. During the 11th and 12th Five-Year Plans with the use of this equipment agricultural bodies of the Union republics are to ensure up to 70 percent of the increase in the production capacities of mixed feed enterprises and with milling and elevator equipment, the remaining increase in capacities. The Ministry of Machine Building for Animal Husbandry and Feed Production must speed up the output of OTsK-4 and OTsK-8 units. This will make it possible to more rapidly reconstruct and construct new mixed feed enterprises. However, obsolete equipment continues to be produced and new one is not mastered.

It is also advisable to solve the problem of deliveries of protein-vitamin additives directly to kolkhozes and sovkhoses, which will greatly reduce transport operations. For example, the experience of the United States shows that 60 million tons of mixed feed are produced by farmers locally by means of the simplest equipment (mills). Farmers also determine the feeding rations of animals, using locally produced grain and additives produced by industry.

It is necessary to solve the problem of the purchase of prototypes of these devices, for example, of such a mill.

The chief thing, however, is to improve the quality of mixed feed and the utilization of concentrates, in particular by applying pulp residues and molasses, which are now used for other needs. In our opinion, in this case the expenditures of grain on the production of mixed feed can be reduced. In some oblasts the proportion of grain in mixed feed comprises 55 to 56 percent and throughout the country, about 80 percent.

M. L. Timoshishin (USSR deputy minister of procurement):

The May (1982) Plenum of the CPSU Central Committee formulated the most important tasks set by the party for agriculture at the present stage, including of an accelerated development of animal husbandry, to which special significance is attached. In connection with this a fundamental role is assigned to feed production and to the quality of mixed feed.

At all the stages of development and formation of the mixed feed industry the CPSU Central Committee and the Soviet Government have constantly paid much attention to the strengthening of its material and technical base. During 1966-1980 the capacities of the state mixed feed industry more than doubled. During those years more than 200 large mixed feed enterprises were built according to standard plans for 200, 315, 500 and 630 tons of output of mixed feed per day with the use of improved and more efficient equipment, new industrial processes and overall mechanization and automation of production.

In the development of the state mixed feed industry the USSR Ministry of Procurement follows L. I. Brezhnev's recommendations: "Apparently, it will be correct if in the development of mixed feed production we will follow two basic directions.

"The establishment of state mixed feed plants is the first. They must produce high-grade mixed feed basically for large specialized poultry and hog breeding farms...

"At the same time, it is necessary to organize at them the production of protein-vitamin additives and premixes for sale to kolkhozes and sovkhozes.

"Mixed feed production on kolkhozes and sovkhozes on the basis of the utilization of local grain and industrial additives is the second path."¹

Mass construction of mixed feed plants with an improved multicomponent weight batching, where full automation of this industrial process and of the mixing of components according to the given program is ensured, began in Soviet practice in 1970. The number of production lines for the output of mixed feed in granulated form with the use of molasses and fat increased.

This made it possible to raise the organization of mixed feed production to a higher quality level, to expand the assortment of output and to improve its quality.

The transfer of industry to the output of mixed feed according to formulas calculated by means of computers was made in the 1970's. This made it possible to develop and introduce improved, new all-Union state standards and sectorial standards for mixed feed for industrial animal husbandry and poultry breeding and to ensure their high efficiency. On farms of the system of the Administration of Poultry Raising Industry, where mixed feed occupies 95 to 96 percent in feed rations, in 1980, as compared with 1970, egg production per laying hen increased by 16 eggs, while feed expenditure on the production of 10 eggs decreased by 0.5 fodder units. Such farms as the Vevis Poultry Factory in the Lithuanian SSR, the Minsk Production Poultry Breeding Association imeni Krupskaya in the Belorussian SSR, the Kustanay Poultry Breeding Production Association and the Glebovskoye and Tomilino Poultry Breeding Associations in Moscow Oblast attained world standards in feed expenditure.

A total of 1.5 to 1.7 kg of mixed feed are expended on the production of 10 eggs here. A high efficiency of mixed feed is also ensured at the hog breeding complexes of the USSR Main Administration for Livestock Production on an Industrial Basis. On the best farms feed expenditures per quintal of weight gain total 4.1 to 4.3 fodder units, while the average daily weight gain during fattening is more than 650 grams.

The enrichment of mixed feed with biologically active substances through premixes of industrial production, whose output was organized in 1972-1973 at special enterprises built in the systems of the USSR Ministry of Procurement and of the Main Administration of Microbiological Industry, also contributed to an improvement in the quality of mixed feed. In 1967 the mixed feed industry mastered the production of protein-vitamin additives and in 1970 it increased more than sixfold. In 1980 more than 2.7 million such additives were produced and on this basis kolkhozes and sovkhozes from their own grain fodder produced about 15 million tons of mixed feed.

At present the state mixed feed industry of the USSR Ministry of Procurement has about 600 mixed feed enterprises. A total of 300 enterprises are equipped with automated systems of multicomponent batching and mixing of components, production

1. L. I. Brezhnev, "Leninskim Kursom. Rech i Stat'i" /Following Lenin's Policy. Speeches and Articles/, Vol 3, Moscow, Politizdat, 1976, p 80.

lines and processes ensuring the production of mixed feed in granulated form with a content of fat, molasses, vitamins, amino acids and trace elements. Right now the material and technical base of the state mixed feed industry makes it possible to produce more than 40 types and varieties of mixed feed and to supply them to the country's animal husbandry. More than 100 various types and varieties of raw materials supplied by 22 ministries and departments in the country are utilized for the production of mixed feed, protein-vitamin additives and premixes.

Speaking of the development and state of the material and technical base of the mixed feed industry, we must not fail to note existing shortcomings: It was not possible to ensure a full technical retooling of this sector. It still has obsolete and worn out capacities and the necessary mixed feed enterprises with modern technology for the production of complex mixed feed formulas have not been established in all regions, which gives rise to an interblast and even interrepublic transportation of mixed feed and to an irregular supply for animal husbandry.

However, construction ministries and local bodies do not always attach great importance to the establishment of such enterprises, which leads to a prolongation of their construction periods. For example, the construction of the mixed feed plant in the city of Nakhichevan in the Azerbaijan SSR by the USSR Ministry of Industrial Construction has been going on for 6 years (from 1976), while the standard is 24 months, in the city of Tayshet in Irkutsk Oblast, 8 years respectively, while the standard is 5 years, in the settlement of Podberezye in Novgorod Oblast by the USSR Ministry of Rural Construction, more than 8 years and so forth. The development of the capacities of the mixed feed industry is also restrained in connection with the fact that the necessary allocations for contract work for the establishment of capacities in the prescribed volumes have not been assigned. As yet not everything has been done to master newly commissioned capacities within the established standard periods.

Sometimes difficulties in the utilization of established capacities are aggravated by consumers of mixed feed. For example, at present the state mixed feed industry has the possibilities of producing and supplying mixed feed in granulated form in much bigger volumes. However, many poultry and hog breeding farms refuse to receive them in such form, referring to the fact that they are more expensive. The rise in the price of granulated mixed feed is recovered through a reduction in its dispersion and bacterial insemination and an increase in its assimilability. The carbamide concentrate, whose output has been set up at special enterprises, is not utilized efficiently.

The development of the mixed feed industry and, especially, improvement in the quality of mixed feed and expansion in its assortment directly depend on the raw material base, an efficient utilization of all types of fodder resources and a decrease in the use of grain. The state mixed feed industry annually utilizes for the production of mixed feed more than 20 million tons of various nongrain types of feed resources obtained as a result of the utilization of the waste of food, hulling and milling, meat and dairy, fish and other industrial sectors, as well as of different types of industrially produced feed. However, the possibilities of utilization of these types of nongrain raw materials have not been exhausted. Right now the state mixed feed industry is able to additionally process a significant amount of nongrain types of raw materials, but their stocks do not meet its needs.

Potentials for an increase in the volumes of production of these types of feed resources exist in all the sectors whose representatives participate in the discussion of this problem and every measure to realize them should be taken.

During the years of the 10th Five-Year Plan the state mixed feed industry failed to receive a large amount of oil seed meal, fodder yeast, grass meal and so forth.

Let us examine the reasons for such a state of affairs. A decrease in the shortage of oil seed meal--the basic type of plant protein raw material--depends on an increase in the production of oil crops, that is, sunflower seeds, soybeans, flax and rape. However, the plans for the production and purchases of these crops are not fulfilled. The USSR Ministry of Agriculture and its local bodies must solve the problem of increase in the production of oil crops.

The plans for the deliveries of grass meal, as well as of leguminous crops, that is, peas, lupin and so forth, are not fulfilled systematically. It is time to solve the problem of providing the capacities for the production of fodder yeast established in the Main Administration of Microbiological Industry with raw materials. Every year, owing to the shortage of fodder yeast, the plan for the production and deliveries of fodder yeast is not fulfilled for 120,000 to 140,000 tons.

The state mixed feed industry is not satisfactorily provided with biologically active substances.

Only two vitamins (D_2 --irradiated yeast--and B_{12}), two trace elements (cobaltous carbonate and potassium iodate) and antibiotics (grisein and bacitracin) are now allocated in a sufficient quantity for the enrichment of mixed feed and protein-vitamin additives.

The supply of vitamins D_3 , K_3 , PP, B_c , C, E and B_6 , amino acids, methionine, lysine, manganese salts, phenoxymethylpenicillin and dihydrostreptomycin is still insufficient.

The microbiological industry does not supply lysine in the planned volumes to mixed feed production, because part of it is produced in forms unsuitable for it--in the form of a nontechnological hygroscopic preparation and in liquid form.

The problem discussed today is very urgent for the intensification of animal husbandry and the utilization of concentrated feed in the country.

V. Ye. Matveyev (deputy chief of the Main Administration of Microbiological Industry):

An efficient utilization of concentrated feed balanced in nutritive and biologically active substances is of decisive importance for an increase in the productivity of animal husbandry. Fodder yeast, amino acids, vitamins, antibiotics for veterinary purposes, enzyme preparations and premixes produced by the microbiological industry have the capacity of exerting the same and in a number of cases even more efficient effect on the animal and poultry organism as the best animal feed (fish meal and dry skim milk). When each of these products is used, especially in the form of complex additives, to balance feed together with premixes, the growth and

development of farm animals are accelerated, their fattening periods and feed expenditures are lowered, the productivity of animal husbandry is increased, the labor productivity of livestock breeders rises, operating expenditures are decreased and the profitability of farms is improved.

Let us examine the efficiency of application of some most important biologically active substances when used for the feeding of animals as part of mixed feed. Averaged data are cited.

One ton of fodder yeast is used to enrich 20 tons of mixed feed. This saves 10 to 12 tons of feed, releases 5 to 7 tons of fodder grain and ensures an additional production of 1.5 tons of poultry meat, or 30,000 eggs, or 0.8 tons of pork, or 0.25 tons of beef. The period of fattening of hogs is shortened by 24 days, of poultry, by 10 to 12 days and of large-horned cattle, by 15 days.

Of the microbiological additives for the balancing of feed the utilization of amino acids, primarily lysine, produces the biggest effect. One ton of lysine saves no less than 125 tons of grain, ensures an additional production of 10 to 16 tons of pork, or 8 tons of poultry meat, or 250,000 eggs and releases 12 to 14 tons of fish meal, or soybean soil seed meal, or 15 to 16 tons of fodder yeast. The economic effect formed from the application of 1 ton of lysine in poultry breeding totals 35,000 to 37,000 rubles and in hog breeding, 18,000 to 20,000.

Fodder vitamins of group B with a negligible expenditure of these products give a high increase in livestock products. One kilogram of vitamin B₂ ensures an additional production of 2.5 tons of meat in live weight and B₁₂, 228 tons. The economic efficiency from the application of 1 kg of vitamin B₂ is 2,540 rubles and B₁₂, 470,000 rubles.

Antibiotics for feed and veterinary purposes (fodder grisein, biovit, bacitracin and vitamycin) promote the intensification of animal husbandry and a decrease in fodder expenditures. A total of 1 kg of an antibiotic reduces livestock and poultry morbidity by 0.5 to 4 percent, increases weight gains during fattening by 5 to 20 percent and lowers feed expenditures by 3 to 7 percent. Depending on the applied preparation economic efficiency totals from 16,000 to 18,000 rubles.

The indicated substances produce the biggest effect in mixtures (complexes) applied in the form of premixes. According to the calculations of the USSR Ministry of Agriculture on the basis of averaged data on 36 premix formulas the productivity of animal husbandry rises as a result of an increase in weight gains in hogs by 15 to 20 percent, in weight gains in large horned cattle by 13 to 17 percent, in milk yields in cows, by 10 to 16 percent, in the growth of young poultry up to 25 percent and in egg production by 13 to 15 percent.

The economic efficiency from the application of 1 ton of premixes exceeds 2,000 rubles. The utilization of enzyme preparations for increasing the productivity of animal husbandry and for saving feed produces good results.

During the 16 years from the day of its formation the microbiological industry increased the volume of output fivefold, including for the needs of agriculture, 30-fold. The production of microbic fodder protein increased 20-fold. However, in the next few years the need of agriculture for microbiological protein, as well as for lysine and premixes, will not yet be met in a full volume.

The Main Administration of Microbiological Industry guided by the assignments of the USSR Food Program is now developing plans for a significant increase in 1990 in the commissioning and expansion of the production of products necessary for animal husbandry with a view to fully meeting the need of agriculture for fodder protein and lysine in the early 1990's and for fodder vitamins, antibiotics, enzyme preparations and premixes by 1990.

The role of construction ministries, of the Ministry of Chemical and Petroleum Machine Building, of the Ministry of Instrument Making, Automation Equipment and Control Systems and of the USSR Ministry of Power and Electrification, which develop new production capacities for the microbiological industry, as well as of the USSR Ministry of Petroleum Refining and Petrochemical Industry, of the USSR Ministry of Gas Industry, of the USSR Ministry of Food Industry and of the USSR Ministry of Timber, Pulp and Paper and Wood Processing Industry, which supply basic technological raw materials to the microbiological industry, in the accomplishment of these problems increases even more.

Yu. A. Neznanov (deputy chief of an administration of the USSR Ministry of Meat and Dairy Industry):

The USSR Ministry of Meat and Dairy Industry pays constant attention to problems connected with an increase in the output of high-grade protein feed from raw materials of animal origin. However, not everything is utilized efficiently on farms. In particular, part of whole milk is still used for feeding calves, although enterprises produce its substitute. During the 10th Five-Year Plan animal husbandry received 820,000 tons of a whole milk substitute for fattening young stock, but the sector's annual need for it is almost twice as high.

However, milk consumption for these purposes is not lowered. Therefore, it is necessary, on the one hand, to more efficiently utilize the whole milk substitute and, on the other, to increase its output, especially of a liquid substitute, as well as of dry, concentrated and enriched whey. For this it is necessary to have a sufficient amount of raw materials (skim milk) and production capacities for processing it. However, capital investments for these purposes are not allocated in a full volume. In our opinion, the situation can be rectified by pooling the resources allocated to our sector and agriculture for an expansion of the production of whole milk substitutes, as well as by building interfarm shops, in which surplus milk will be processed during summer time. For the 11th Five-Year Plan the construction of 248 plants for the production of dry milk has already been coordinated with oblast and kray committees. A program has been developed for the period until 1990. It envisages tripling the production of dry skim milk. The volumes of output of dry, concentrated and enriched whey will increase 10-fold.

Ye. A. Ageyev (deputy chief of an administration of the USSR Ministry of Meat and Dairy Industry):

The USSR Ministry of Meat and Dairy Industry implemented a number of organizational and technical measures for an increase in the production of dry feed for animal husbandry. The material and technical base of the meat industry was expanded and strengthened, as a result of which at the end of the 10th Five-Year Plan, as compared with 1975, the capacities for the output of dry animal feed increased 1.3-fold and of dry skim milk, of a whole milk substitute and of dry whey, 1.7-fold.

However, the established plans for the production of dry animal feed are underfulfilled. For example, in 1976-1980 a total of 86,000 tons of dry feed were underdelivered as compared with the plan and in 1981, a total of 19,000 tons.

The main reason for this is the underdelivery of livestock for processing as compared with the planned volumes, owing to which during the 10th Five-Year Plan the industry failed to receive 350,000 tons of raw materials for feed production and in 1981, a total of 47,000.

Along with this serious factor hampering an increase in the production and an improvement in the quality of dry animal feed in the meat industry the sector's enterprises are not satisfactorily provided with serially produced industrial equipment and insufficient capital investments are allocated. As a result, to this day 245 meat combines, at which about 8 percent of the livestock is processed, do not have shops for the production of dry feed.

The total shortage of capacities on 1 January 1982 amounted to 241 tons of feed in a shift. The protein waste obtained at these enterprises is transported to meat combines equipped for its processing. However, part of the waste, owing to the shortage of specialized motor transport, is processed into cooked feed, which cannot be stored for a long time.

For the purpose of further increasing feed production the USSR Ministry of Meat and Dairy Industry has worked out for 1982-1985 a plan of measures envisaging an increase in capacities for the production of dry animal feed amounting to 285.9 tons in a shift, replacement of worn out and installation of additional technological equipment and improvement in the organization of the collection of raw materials from technically unequipped enterprises.

The fulfillment of the envisaged measures will make it possible to increase the production of dry feed by 29 percent in 1985 as compared with 1980. However, the attainment of this level is connected with big difficulties owing to the shortage of basic technological equipment for the processing of nonfood protein waste. The equipment allocated to the sector is not sufficient even for the replacement of the equipment that has become inoperative. Such a situation can lead to a reduction in the capacities of shops and in the output of dry feed. For example, for 1982, while there is a need for 517 horizontal vacuum boilers, including 325, for a mandatory replacement of worn out boilers, funds for the acquisition of only 223 boilers, or 43 percent, were allocated to the meat industry. For the 1982-1985 period a delivery of 1,100 horizontal vacuum boilers is envisaged, but 1,750 are needed.

There is a similar situation with the provision of equipment for degreasing, grinding and screening bone meal, as well as with motor transport for the collection of nonfood protein waste from enterprises not provided with equipment for its processing.

For many years the Ministry of Machine Building for Light and Food Industry and Household Appliances has not solved the problem of organization of the production of mechanized flow lines for the meat industry, which produce dry animal feed.

The date for the output of such lines envisaged by a joint order with this ministry in 1980 was not met through the fault of machine builders and was postponed to 1986. Thus, during the 11th Five-Year Plan the technical retooling of shops and increase in the capacities for the production of dry animal feed at the expense of this factor are impossible. Owing to the lack of modern technical facilities for the processing of nonfood protein raw materials the ministry is forced to equip enterprises with obsolete periodic-action horizontal vacuum boilers produced for more than 40 years.

In our opinion, to ensure the production of dry animal feed in the planned quantities, in 1982-1985 the Ministry of Machine Building for Light and Food Industry and Household Appliances must deliver sufficient quantities of serially manufactured basic technological equipment to the USSR Ministry of Meat and Dairy Industry and develop and master the series production of new types of technological equipment and production lines in full sets for the output of protein feed. The USSR State Committee for Material and Technical Supply must annually envisage in the plans of delivery to the USSR Ministry of Meat and Dairy Industry 100 container garbage trucks for the delivery of nonfood protein raw materials from unequipped to equipped enterprises for the purpose of processing. In 1982-1985 the USSR State Bank must grant long-term credits to the production associations and enterprises of the USSR Ministry of Meat and Dairy Industry for the construction, expansion and reconstruction of shops for industrial manufactured goods in excess of the established allocations of state capital investments with the repayment of these credits over 6 years from the moment of issue of a loan. The USSR State Committee for Material and Technical Supply and Tsentrosoyuz must ensure an increase in sifted procurements of bone for an annual production of up to 300,000 tons of glue.

P. T. Saranchuk (deputy chief of an administration of the USSR Ministry of Fish Industry):

The fish industry, providing the country with protein products, produces food fish products to meet the population's needs and produces from fish and other sea products feed meal, whose introduction into mixed feed greatly increases its food value. In 1970-1976 the volumes of fish meal production increased considerably as a result of the commissioning of a new fishing and fish processing fleet, as well as the development of raw material fish resources in new ocean fishing regions.

The food production waste was the basic raw material for the production of feed fish products during the 1976-1980 period.

Changes in the conditions of world fishing owing to the introduction by many countries of 200-mile economic zones decreased the possibilities of Soviet fishing in traditional fishing regions. Under these conditions special attention is paid to an improvement in the utilization of raw materials for the production of fish products.

As a result of the reduction in the volumes of raw fish materials allocated for feed purposes in 1980-1981 the production of feed meal decreased by 100,000 tons. Under existing fishing conditions raw material resources ensure the stabilization of the output of feed meal.

In accordance with the forecasts for the development of the fish industry significant volumes of output of feed fish products are envisaged for the years of the 11th Five-Year Plan and for 1990.

At present krill is the basic raw material from which it is possible to increase the production of feed meal. The utilization of feed from it in animal husbandry, poultry breeding and fur farming contributes to a significant increase in the productivity of animals. Small sea fish, of which there are more than 15 species, unsuitable for fish purposes can also be utilized for the production of feed fish meal. At present they do not have a specialized industry.

During the 11th and 12th Five-Year Plans production capacities for the output of feed meal have decreased, because the withdrawal of capacities as a result of the writing off of technically obsolete vessels, whose service life has ended, exceeds their increase. Along with this existing fish meal production capacities ensure an increase in the output of feed fish meal through a rise in the coefficient of their utilization.

The further development of the production and technical base of the fish industry (fleet vessels and coastal processing enterprises) will make it possible to increase the production of fish in dressed form, whose waste will give an additional increase in raw materials for the production of feed products. A total of 1 to 1.5 million tons of fish have been produced in dressed form in the last few years. By 1990 a total of 50 to 60 percent of all the raw fish materials will be subjected to dressing. All this will increase the amount of its waste for utilization in fish meal production.

Taking into consideration the fact that at present not all the vessels producing feed meal are provided with vacuum-evaporator systems and prepressing bouillon is often not utilized, during the 11th Five-Year Plan this gap is to be eliminated by additionally outfitting depot ships with repaired AI-IZhR/8 evaporator systems, which have become inoperative as a result of a prolonged operation.

Investigations conducted by scientific research institutes and other organizations have shown that with the utilization of prepressing boullions the output of feed meal can be increased by an average of 2 percent with a significant improvement in its quality. The use of these boullions will make it possible to increase the output of feed meal.

Provided two alga plants are reconstructed and 13 such lines are installed at them, by 1990 it is possible to additionally produce 8,000 tons of feed alga meal.

Plans are made to increase the volumes of production of feed meal from fat raw materials with the application of an antioxidant, for which it is necessary to significantly increase the output of ionol. All feed meal produced with an antioxidant should be packaged in four- to six-layer laminated bags of a holding capacity of 30 kg. The output of feed meal in granulated form will increase during subsequent years, which ensures its better preservation during transportation and storage.

V. I. Bazakin (chief of the All-Union Soyuzreaktiv Production Association):

Metal complexons and complexonates are new chemical compounds, which in a number of cases are used successfully in plant growing and animal husbandry. Many national economic problems can be solved on their basis. As a result of prolonged research by Soviet scientists conducted mainly at the All-Union Order of the Red Banner of Labor Scientific Research Institute of Chemical Reagents and Ultrapure Chemical Substances of the Ministry of Chemical Industry a series of investigations in the area of synthesis, study of physicochemical properties and development of the technology of production of metal complexons and complexonates were carried out. The production of metal complexons and complexonates used in agriculture, such as diethylenetriaminopentacetic, nitrilotrimethylphosphonic and oxyethylidenediphosphonic acids and their complexes with biometals--iron, manganese, zinc, copper and so forth--has now been established at Soyuzreaktiv and Soyuzzorgsintez plants.

The application of new bioactive complexonates makes it possible to prevent or to eliminate a serious plant disease--chlorosis. The method of curing chlorosis has acquired practical importance and is introduced widely. The economic effect from the application of "antichlorozin" in the Ukraine alone amounts to 11 million rubles. Standard net income from the increase in the grape crop is 400 to 700 rubles per hectare (according to the data of Tajik State University and the Dushanbe All-Union Scientific Research Institute of Horticulture, Viticulture and Vegetable Growing).

The application of metal complexons and complexonates as microfertilizers makes it possible to increase the yield of grain and valuable industrial crops, including cotton.

A long-term use of complexons for the control of the lodging of grain and pulse crops contributes to a reduction in harvest losses as a result of the growing of short-stem plants and increase in the yield of grain crops (winter rye, wheat and barley) as a result of the formation of a bigger ear.

Trace element complexonates are now beginning to be applied in vegetable growing. According to the data of the Institute of Biology of the Karelian Affiliate of the USSR Academy of Sciences (Petrozavodsk) foliar treatment of tomatoes increases their yield by 10 to 15 percent. The treatment of cucumber seeds under protected ground conditions with solutions of iron, copper, zinc and manganese complexonates increases the early harvest during the first fruit bearing month by 40 percent.

Complexons play an important role in animal husbandry. The higher assimilability and activity of trace element complexonates as compared with mineral salts is their most important advantage. Iron complexonates (ferroanemin and so forth) prevent and cure anemia in a valuable fur bearing animal. The purchase price per mink increases by 4 rubles, while the expenditures on the reagent are 15 kopecks. The introduction of trace elements in the form of complexonates into the ration of agricultural animals increases their productivity. For example, cobalt and nickel complexonates in the ration of chicks increase their live weight gain. An addition of trace element compounds to the food of hogs promotes the growth of their average daily weight gains.

Trace element complexons and complexonates also play an important role in the solution of the problem of reproduction of farm animals. Their application eliminates the interfering biological effect of heavy metals during the storage of the sperm of pedigree animals--rams, bulls, boars and so forth.

For a more rapid introduction of results into the practice of agriculture the problem of expansion of the raw material base and scale of production of biologically active complexonates (antichlorozin, ferroanemin and so forth) is now being studied.

V. B. Perevozchikov (chief engineer at an administration of the USSR Ministry of Nonferrous Metallurgy):

The USSR Ministry of Nonferrous Metallurgy produces for agriculture phosphoric, potassic and boric fertilizers and semifinished products for their production--sulfuric acid and elementary sulfur. The ministry's products are used during the manufacture of tractors, machinery and equipment for agriculture.

The assignments of the five-year plan by 1985 envisage an increase in the output of mineral fertilizers, sulfuric acid and elementary sulfur.

A total of 450 to 500 tons of zinc sulfate are utilized directly in mixed feed production, which meets the need of agriculture for this component.

For the realization of planned assignments for the production of mineral fertilizers, sulfuric acid, elementary sulfur and other types of products allocated for agriculture it is necessary to assign allocations for contract work for 1983-1985.

N. P. Shcheblykin (chief of a division of the USSR Gosplan):

Providing the population with livestock products, the increase in the production of which directly depends on the supply of balanced feed for this sector, is the most important task set by the country's food program.

Whereas it is necessary to spend about 8 tons of mixed feed on the production of 1 ton of weight gain in hog breeding with an unbalanced ration, only 4 to 4.5 tons of balanced mixed feed. In order to ensure the industrial production of balanced feed in the necessary volumes, it is necessary to supply all the components envisaged by the technology of its preparation to the mixed feed industry. If even one of them is missing, high-grade output will not be obtained.

This problem is especially acute now, when agriculture is adopting industrial methods of animal husbandry management.

Despite the high rates of development of the mixed feed industry there are still difficulties in providing it with balanced additives. This is a very complex task. In order to solve it, it is necessary to greatly expand the production of protein additives in all concerned ministries and departments, including ministries of agriculture. Furthermore, it is necessary to increase the production of amino acids, vitamins, trace elements, antibiotics and other biologically active substances. The country's mixed feed industry is not provided with iron and manganese salts, although the need for them is relatively not big (several thousand tons). It would

seem that this problem should not exist with our natural resources. However, salt production by the chemical industry has not been organized in sufficient volumes. In addition, consumer specifications are too high. In our opinion, in a number of cases it is quite possible to use salts designed for technical purposes. This would make it possible to fully meet the needs of animal husbandry for the next 2 to 3 years.

It will be hardly possible to supply the sector with protein and other additives without additional capital investments. Therefore, it is necessary to once again give thought to potentials. They can be found by analyzing how the capital investments already allocated for an expansion of the feed production base are utilized. Calculations show that up to 20 percent of them are not utilized. Builders who carry out such operations and customers must do a great deal to fulfill the assignments for the development of animal husbandry determined by the country's food program. Or another problem connected with the utilization of capacities. For example, in protein production in the microbiological industry for a number of reasons capacities are not utilized fully. In particular, the USSR Ministry of Petroleum Refining and Petrochemical Industry and the USSR Ministry of Timber, Pulp and Paper, and Wood Processing Industry often underdeliver raw materials for the production of microbiological protein to the microbiological industry. In the food industry there are shops for the production of food yeast, which do not operate all year round. At some alcohol plants capacities for the production of fodder yeast are altogether idle.

There are also significant potentials in an improvement in the utilization of protein resources. If protein introduced into feed is balanced in the amino acid composition, it is possible to greatly increase its nutritive value. However, the Main Administration of Microbiological Industry and the Ministry of Chemical Industry do not meet the needs of animal husbandry for lysine, methionine and tryptophan.

It is necessary to accelerate work on the testing of threonine additives in animal husbandry. Providing animal husbandry with amino acids is now the most acute problem and its solution will make it possible to obtain a yield in comparatively shorter periods.

Or let us take the carbamide concentrate. In the last 3 years its production has not increased, but has even decreased. The USSR Ministry of Agriculture, the USSR Ministry of Procurement and the USSR Gosplan have the same point of view of the need for its greater application and, apparently, serious attention must be paid to this problem with a view to utilizing existing possibilities for the application of nitrogenous additives. It is also possible to increase the production of vitamins in the medical industry.

In our opinion, it is advisable to carry out a set of scientific research investigations for an increase in the coefficient of assimilation of additives introduced into mixed feed. For example, yeast is a good product, but the coefficient of its assimilation is not high. Work on the enzymatic hydrolysis of this protein has shown the possibility of significantly improving its assimilation. It is advisable for the Main Administration of Microbiological Industry, the USSR Ministry of Agriculture and the USSR Ministry of Procurement to examine the problem of utilization of the existing potential of protein and other components in all directions.

At the request of the USSR Ministry of Agriculture a decision to plan in a separate line the production of mixed feed for young animals under the age of 60 days was adopted recently. If young stock is provided with high-quality feed, it is possible to increase its weight gain during fattening. However, during the development of the draft plan for 1983 we again encountered difficulties in the delivery of significant volumes of dry milk for mixed feed production. It is advisable for the Main Administration of Microbiological Industry and the USSR Ministry of Agriculture to find the possibility of at least partially replacing it with enzymolysates of microbiological feed protein. The utilization of enzymolysates in the fish industry makes it possible to greatly increase the survival rate of young fish. This is an interesting result and experiments should also be conducted in this direction.

Discussing potentials, it should be noted that without a solution of the problem of additives to agriculture it is complicated to increase the volume of livestock output. Furthermore, it is important to dwell on the problem of providing mixed feed with fats. The latest scientific data indicate that such unsaturated fatty acids as linoleic, linolenic and arachidic are irreplaceable and should be introduced into mixed feed. A tendency toward the application of energy saturated mixed feed with the inclusion of fats in it is observed in our country and abroad. The microbiological industry should also solve this problem, because it has available strains of microorganisms making it possible to obtain a biomass with a 30-percent fat content.

The discussion held has shown that our national economy has significant potentials for an increase in the production and efficiency of utilization of concentrated feed. The task of planning bodies and ministries is to see to it in every possible way that these potentials are utilized as quickly as possible and with the greatest effectiveness.

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AGRO-ECONOMICS AND ORGANIZATION

MINISTER REVIEWS MAJOR PROBLEMS OF FRUIT, VEGETABLE INDUSTRY

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 2, Feb 83 pp 1-4

/Interview with N.T. Kozlov, minister of the USSR Fruit and Vegetable Industry: "Great Tasks, High Exactingness"/

/Text/ The editorial board of our journal asked the minister of the USSR Fruit and Vegetable Industry to respond to a number of questions. The interview with him is published below.

/Question/ Nikolay Timofeyevich! Tell us please, what role will be played by your ministry in solving the food program and what must be done in the immediate future to increase the production and procurements of potatoes, fruit and vegetables throughout the country?

/Answer/ The ministry occupies a leading position in the country with regard to supplying the population with fruit and vegetable products. Thus the proportion of fruits and vegetables being procured within the ministry's system constitutes approximately 60 percent of all procurements of these products throughout the country.

With each passing year, our system is increasing its capabilities for producing and selling fruit and vegetable products to the state. For the third year of the five-year plan, the plans call for the vegetable procurement volumes at subordinate farms to be raised to 9.1 million tons, or 15 percent higher than the 1982 level and those for fruit to be increased accordingly to 1.8 million tons, or 24 percent more; the production of canned fruit and vegetables is to be increased by 800 million standard cans, with the overall production reaching 9.6 billion standard cans in 1983. Considerable increases will be achieved in 1983 in the volumes of quick-frozen products, dried vegetables and fruit and potato products.

The achievement of the planned goals is a fully realistic task. It is sufficient to state that for the development of our branch alone, during the current five-year plan, the state has allocated 10 billion rubles worth of capital investments. These funds will be used for further strengthening the logistical base of the sovkhozes, developing the processing industry, building vegetable and fruit storehouses, hothouse combines and plants for the production of packaging materials, creating transport enterprises, expanding

the specialized trade network and also for the construction of projects of a social and cultural-domestic nature.

Special attention will be given to further increasing the production of fruits, berries and grapes and to their timely processing. And there is good reason for this. Indeed the importance of these products with regard to ensuring that the population is supplied with nutritionally rich products, especially the northern regions, is difficult to exaggerate. In addition to high nutritional and dietetic qualities, these products also possess medicinal properties.

However, the population's requirements for fruit and berries are still not being satisfied completely. At the present time, approximately 40 kg of fruit and berries are being produced per capita and no less than 72 kg are required in order to satisfy completely the requirements. Thus the food program calls for the production of fruit and berries during this current five-year plan to be increased by 5.5 million tons compared to the previous five-year plan.

The means for solving this problem have been clearly formulated.

The central committees of the Communist Party and the councils of ministers of the union republics, jointly with the Ministry of the Fruit and Vegetable Industry and other interested ministries and departments and local party, soviet and agricultural organs are tasked with creating large-scale specialized farms and agroindustrial enterprises for the production and processing of fruit and vegetable products in the southern oblasts of the Russian Federation, the Ukraine, Kazakhstan, the republics of Central Asia, the Trans-Caucasus and in Moldavia.

In conformity with the all-union division of labor, the principal base for supplying the populations of cities in the center and northern European part of the country, the Urals, Siberia and the Far East with heat-loving vegetables, fruit and berries and also with the products derived from their processing must be created here.

At the present time, work has already been carried out in these zones in connection with farm specialization and the creation of new sovkhozes for our ministry, which will produce from 10,000 to 20,000 tons of fruit and berries annually. The concentration and intensification of specialization are making it possible to utilize the equipment properly, to carry out work aimed at introducing new and leading technologies which will ensure high and stable yields, to utilize human resources in a rational manner, to create a base for the storage of products and to achieve uniformity in the deliveries of these products to the consumer.

/Question/ One of the chief tasks of the ministry is that of ensuring continuity in the chain for moving the fruit and vegetable products and potatoes from the producer to the consumer: procurements, transport operations, storage and sales. What levers must be employed in order to bring about substantial improvements in the supply of fruit and vegetable products for the country's population?

/Answer/ Our chief task consists of ensuring continuous operation of the entire fruit and vegetable production line and eliminating all obstacles

standing in the path of fruit and vegetable deliveries to the consumer. It is my opinion that three conditions are required in order to achieve this: fine work organization in each of these sectors, psychological preparation of each worker for carrying out the tasks assigned to him and a thorough understanding of the responsibility we bear today for everything -- for the quantity and assortment, for the timely delivery of products to the consumer, for trade in the fruit and vegetable products and for the preservation and processing of these products.

And finally there is the third important condition -- radical improvements in the logistical base, especially the storage and processing of the products.

The most important component part of the logistical base is that of transport. A great deal depends upon the efficient organization of transport operations -- the quantities and quality of the vegetables, fruit, grapes and other products to be delivered from the fields to the tables of the consumer. In view of the fact that the principal burden with regard to fruit and vegetable shipments to the all-union fund is borne by railroad transport, we must develop efficient business-like relationships with the railroad workers. With regard to motor vehicle transport, this is the very foundation for the carrying out of the entire technological production process -- shipments from the fields to the trade network, to the procurement bases, to railroad stations and to the piers. A considerable portion of the all-union shipments of fruit and vegetable products is carried out by special motor transport vehicles.

The problem of transporting fruit and vegetable products is urgent and many-sided and it requires daily attention and the adoption of technically and economically sound and timely solutions.

The prospects for developing transport operations for our system have been defined. This includes the development of a general plan for shipments, the creation of a network of specialized motor transport enterprises and receiving points at railroad stations, piers and airfields, the construction of piers and river procurement bases, the routing of product deliveries, the introduction of container and package shipments, improvements in the utilization of transport equipment and the more extensive use of general purpose motor transport equipment for fruit and vegetable shipments.

An increase in motor vehicle shipments in inter-republic and inter-oblast traffic is a principal trend in the development of transport for our ministry. During this current five-year plan, in the interest of solving this task, the government is increasing considerably the number of motor transport vehicles and by 1985 the pool of refrigerator trucks will have been doubled.

The production of those fruit and vegetables which can be grown in a given area will be developed around the large industrial centers. This will make it possible to supply them in fresh form and to reduce transport expenses.

/Question/ Could you not tell us about the difficulties the ministry is experiencing in organizing the continuous operation of the fruit and vegetable production line? What is restraining the creation of a single network for controlling the procurements, deliveries, transporting and sales of fruit and vegetable products and potatoes?

/Answer/ One of the chief tasks of Minplodoovoshchkhov /Ministry of the Fruit and Vegetable Industry/ is that of organizing and carrying out state procurements at the kolkhozes and sovkhovs.

At the present time, the principal bulk of the vegetables, potatoes and fruit in the country is being produced in the public sector. These products are being sold in the large cities and industrial centers through the Minplodoovoshchkhov system, while at the same time these products are being procured by other procurement organizations and departments. Whereas in the Georgian, Azerbaijan, Moldavian, Armenian and Turkmen Union Republics from 90 to 100 percent of all fruit and vegetable procurements are being carried out within the ministry's system, in the Uzbek SSR -- one of the largest suppliers of products to the country's industrial centers -- the proportion of vegetable procurements being carried out within the Minplodoovoshchkhov system amounts to approximately 30 percent and the deliveries of these products from the republic to the all-union fund are being carried out by cooperative organizations.

The same situation developed in Rostov and Astrakhan Oblasts in the Russian Federation, in Zaporozhye and Nikolayev Oblasts in the Ukraine and in some other oblasts and this is affecting the delivery schedules and the quality of the products.

This is precluding the possibility of creating a single network for controlling the procurements, deliveries, transporting and sales of fruit and vegetable products and potatoes, it is narrowing the possibilities for maneuvering resources and it is inhibiting quality control.

Such a situation is also complicating the development and creation of a single system for organizing the logistical base for procurements and storage and it is holding back the implementation of measures aimed at raising the economic interest of all elements of the fruit and vegetable complex in the final results -- the quality of the vegetables, fruit and potatoes sold.

/Question/ Leading experience has obviously been accumulated and already summarized within the Minplodoovoshchkhov system. Experience indicates that the most reliable and effective means for disseminating and introducing it consists of demonstrating and teaching it in a timely manner. The ministry has already conducted many useful all-union conferences and seminars. What other forms are being employed for ensuring that this experience is made available to all?

/Answer/ First of all, I would like to clarify this question somewhat. It is scarcely possible to teach each leader how to perform well based upon instructions from above.

Quite often some leaders act in a sluggish manner, they fail to utilize reserves which are readily available and they wait until they receive instructions from above. In such instances, great improvements in the work cannot be expected. On the other hand, those workers who display genuine initiative, who constantly search for reserves and who utilize them in a fine manner, achieve notable successes in their work. Here are some specific

examples. An industrial technology for the cultivation, harvesting and processing of fruit and vegetable products is being introduced into operations successfully in Moldavia. An all-union seminar-conference dealing with this matter was conducted in September of last year. Machines and equipment were required for the industrial technology. Today the USSR Ministry of Tractor and Agricultural Machine Building is still not capable of producing them. But in Moldavia they refused to wait for these machines. Here they began producing the needed machines and equipment at a number of industrial enterprises throughout the republic.

Another instructive example. During the 2d Plenum of the Professional Trade Union for the Fruit and Vegetable Industry and Procurements and at an all-union conference-seminar in Saratov, the chief of the Kurgan gorplodoovoshch-torg /municipal trade organization for trade in fruit and vegetable products/, A.G. Savonov, shared his experiences. He discussed how, during a brief period of time, he succeeded in alleviating the laborious work being carried out at fruit and vegetable bases. As a result of technical re-equipping, manual labor at the bases was eliminated almost entirely and instead of losses the bases began earning substantial profits. A fine short-length film was prepared describing the Kurgan experience. The results achieved at Kurgan can be achieved at each gorplodoovoshchtorg and at each fruit and vegetable base. This requires only initiative and the desire to improve the organization of labor.

/Question/ The preservation of perishable products occupies an important place in the work of Minplodoovoshchkhov. Those products which for a number of reasons cannot be delivered to the workers' tables during the season of procurements are processed into canned goods. What are the operational results of the system's canning plants at the present time and what are the prospects for the development of this branch?

/Answer/ The processing industry is confronted by great and responsible tasks. With its assistance, we can reduce losses sharply, create new types of fruit and vegetable products, supply the population during the autumn and winter period and increase the consumption of these products in the northern regions of the country.

In 1982 the industrial enterprises of Minplodoovoshchkhov fulfilled the plan for product sales, with a considerable quantity of products over and above the plan being supplied. Approximately 8.6 billion standard cans of fruit and vegetable products were produced, or 9 percent higher than the level for the previous year.

For the sake of fairness, it should be stated that the assortment of fruit and vegetable canned goods still does not satisfy the population's requirements. In particular, very little vegetable marrow and eggplant paste is being produced. We are presently devoting attention to this problem.

/Question/ With the increase in the production of potatoes, vegetables and fruit, will animal husbandry operations be developed at sovkhovs of Minplodoovoshchkhov?

/Answer/ I would like to answer this question immediately by stating that we cannot conceive of the intensive management of vegetable and orchard production operations and obtaining high vegetable and fruit yields in the absence of developed animal husbandry operations and especially dairy animal husbandry. Indeed, our sovkhoses have been created mainly around industrial centers as vegetable and dairy enterprises, for the purpose of supplying the workers with vegetables and whole milk.

By way of information, I wish to state that milk procurements at our farms have increased by 5 percent compared to 1981. At the present time, the sovkhoses in our system are maintaining approximately 5 million head of large-horned cattle, including 1.98 million cows, 1.2 million hogs and 2 million sheep.

/Question/ Up until now, we have touched upon only the production side of the problem. But how is work proceeding with regard to solving the branch's social problems? What is being done and what will be done in the future in this regard?

/Answer/ One of our chief tasks is that of displaying concern for our Soviet workers, their labor and domestic routine. If favorable working and recreation conditions are created for an individual, he will prove to be of great use to the state.

Special attention is being given to improving the working conditions. It is no secret that a number of branches engaged in the production and procurement of fruit and vegetable products are still only weakly mechanized and that a considerable volume of work must still be carried out manually. This is why we are constantly devoting attention to the mechanized harvesting of fruits and berries and also to automation and constant improvements in loading and unloading operations. During the 11th Five-Year Plan, considerable funds were allocated for this purpose.

Concern for the labor of man and for improving the material level of our Soviet people has always been a chief task of our party. And we are constantly guided by this principle in carrying out our practical work. At the present time, the specialists at our ministry, in response to the concern being displayed by the Communist Party, are striving to accelerate a solution for the problem of supplying the Soviet people with fruit and vegetable products on a continuing basis.

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AGRO-ECONOMICS AND ORGANIZATION

COUNCIL OF MINISTERS COMMISSION DISCUSSES APK PROBLEMS

Moscow SEL'SKAYA ZHIZN' in Russian 1 Mar 83 p 1

[Article: "Increasing Production Efficiency"]

[Text] At a meeting of the commission of the Presidium of the USSR Supreme Soviet for questions of the agro-industrial complex that was held on 28 February reports were heard from the USSR Ministry of Agriculture, the USSR Ministry of Finance, the USSR State Committee for Prices and individual republic ministries and departments concerning work they had done to differentiate procurement prices for agricultural products and to introduce increments to these prices for kolkhozes and sovkhoses that are less profitable or operating at a loss.

Attention was devoted to the fact that in certain republics, krays, oblasts and rayons there are serious shortcomings in this matter. Not all kolkhozes and sovkhoses have developed organizational and technical measures for reducing production costs and increasing production efficiency. There have been cases of incorrect utilization of funds allotted for increasing procurement prices and increments to them for products that are sold to the state. It was emphasized that these funds should primarily provide for increasing the production of agricultural products and strengthening the economies of the farms as well as obtaining a large return from them even this year.

The USSR minister of land reclamation and water management, N. F. Vasil'yev, and the USSR minister of agriculture, V. K. Mesyats, reported on measures related to the fulfillment of assignments envisioned by the USSR Food Program for increasing production of agricultural products on reclaimed land and also accelerating the reconstruction of existing irrigation systems. They pointed out the need to increase the proportion of production on these lands of corn grain, alfalfa and other feed crops.

Participants in the meeting considered the course of the fulfillment of the plan for the delivery of meat and dairy products to the unionwide supply.

They also considered the question of accelerating the introduction of means of automation, measurement equipment and automated control systems in branches of the agro-industrial complex.

CRITICISM OF PLANNING, SUPPORT FOR SUBSIDIARY OPERATIONS

Moscow PRAVDA in Russian 2 Feb 83 p 2

[Article by V. Kuz'mishchev: "Patronage--According to the Plan"]

[Text] To begin with I asked several of my acquaintances the quantity of potatoes they harvested on the sovkhoz or kolkhoz under the patronage of their enterprise. And no one answered: "I harvested a ton or a ton and a half." Each of them said: "I worked so many days." Attempts to find an answer to this question at the level of the enterprises also turned out to be unsuccessful. They could say how many workers they had sent to the fields and how many man-days they worked there, but they had no idea about tons or quintals. Nor do statistical agencies keep track of patronage assistance, either in physical or in any other indicators.

The manager of the enterprise is given an assignment: to send so many people for harvesting. And what they will do there is not his problem. Regardless of whether they worked badly or well, the city dwellers are in the fields, the earnings are at the plant, and it has nothing to do with the institution or institute. So far there is no question of how much to pay or how to pay for labor, and the effectiveness of patronage assistance on this wide scale is still not fully taken into account.

We shall try to use a specific example to calculate this for ourselves. And in order for the figures to be more accessible, let us take the Ternopol association and the Combine Plant imeni XXV KPSS. Just in the last 10 days of October of last year on the fields of the Rossiya sovkhoz under its patronage machine builders worked more than 7,000 man-days. This was the labor of an entire shift which is capable of producing 16 sugar beet harvesting machines and 40 machines for harvesting sugar beet tops, and 16 sugar beet harvesting machines would have harvested 480 hectares. But the plant workers helped to harvest 110 hectares of sugar beets during this time. Of course the plant workers helped a specific village, but for agriculture as a whole it would have been more advantageous to receive more machines.

One can give other economic paradoxes. One acquaintance of mine, a candidate of sciences and the head of a laboratory of a branch scientific research institute along with his collective harvested potatoes in the Moscow area. I will not say that he was disappointed with the earnings of 400 rubles for this labor, but at the same time one of the most important national economic

construction sites was awaiting him and his workers in order to startup some automated equipment that was developed by the laboratory. Their delay ended up in losses of many thousands of rubles.

One can give many similar examples. But let us look at the problem from the other side. For engineers and candidates of sciences do not leave an easy life to take up the rakes; thousands of workers are taken away to the detriment of their main job.

Certain plants, the Cherepovets metallurgical plant, for example, have created special brigades for work on farms under their patronage consisting of former combine and tractor operators who at one time came to the enterprise from the country. And since the influx from the country continues it is necessary to "pay their debts."

Whether we like it or not time dictates our tasks. For on some farms there is not even anybody to milk the cows--not to mention harvesting the fields. And the level of mechanization in agriculture is still not so high that machines have fully replaced the people who have left the country. It is obvious that patronage assistance is a necessity which will exist until industrialization of agriculture makes it possible to handle our expanses with the minimum number of people. The USSR Food Program is the main path to intensification. But it will take years and until then we cannot do without the city dwellers.

The PRAVDA editorial staff receives many letters from city dwellers about the large amount of time they lose in their fields in vain because of the poor organization of work and because the kolkhoz workers have become accustomed to relying on their "city uncles" and they themselves have an indifferent attitude toward the work.

From rural areas there are many letters about the fact that city dwellers just want to get through their time on the kolkhoz and sometimes they will sprinkle a potato with dirt in order not to have to bend over again. And how many potatoes, cabbages, carrots and onions do they take with them?

In short, the random patronage assistance is frequently a mass of mutual complaint, fairly poor efficiency and economic losses for the city and the appearance of a dependent attitude in the rural areas.

But there are also letters and newspaper articles to the effect that long-term ties are being established between enterprises and kolkhozes on the basis of agreements and that patronage work is planned for the future. The plant workers introduce in rural areas that in which they are strong--the leading engineering developments.

The VEF association, for example, has long standing ties with farmers of Limbazhskiy Rayon in Latvia. Year before last they gave the kolkhozes and sovkhoses 14,000 rubles' worth of spare parts alone, constructed a hog farm for 600 head, and repaired and shipped in a good deal of equipment. In many oblasts there are long-range plans which indicate precisely the enterprise and the farm on which they are to be carried out. These plans include the

construction of consumer and cultural centers, kindergartens and also warehouses, farms and other production facilities.

But let us think: raw and processed material and other resources are allotted to the enterprise for fulfilling the plan within strict limits, taking into account the consumption norms. It turns out that either the items that are produced are of poor quality or the orders for material resources has been increased beforehand.

Nowhere is it said whose funds should be used for this work, how to compensate for labor expenditures, where to get construction materials and equipment for the farms and shops, and whose supplies should provide the spare parts for the farms under the patronage system.

There is this answer: through internal reserves. But, after all, each enterprise makes commitments and counterplans whose fulfillment requires "internal reserves." And if hundreds of workers and hundreds of thousands of rubles still remain for patronage work, this does not show an economic attitude toward business, but that the plants have created concealed supplies of funds, materials and labor force for patronage work in rural areas.

We are faced with a strange situation. On the one hand the enterprise is obliged to carry out a task of state importance, but at the same time planning agencies do not allot money and capital for patronage assistance. Perhaps it is simpler for the planning agencies to close their eyes to violations than to calculate the amount of materials, parts and equipment that have gone to rural areas. One can presume that there is a certain fear of such calculations since the figures will turn out to be unexpectedly large.

But what is patronage assistance if not a kind of counterplan? It is also a manifestation of the initiative and conscientiousness of industrial workers, which is directed toward increasing the output not of their main products, but to increasing the productivity of the fields and farms and solving social problems of rural areas. But if the well-known decree of the CPSU Central Committee and the USSR Council of Ministers concerning improvement of the economic mechanism included counterplans for collectives in the statewide plans and reinforced this initiative with the necessary materials, funds and resources, patronage work was not planned, and this means that material and technical support was not envisioned for it.

Like the organism of a strong man himself, without intervention from outside, overcomes disease, so the economy in one way or another transfers the assistance from the city to the country to a planned basis.

In 1981 3,500 new subsidiary farms were organized and they were given 1.6 million hectares of land. This is not only land that was previously unutilized, but hectares from economically weak farms which just managed to survive with assistance from the city. And this land was given to the plants in the hopes that it would finally produce the proper return. The modern enterprise has a more powerful material and technical base than that of the kolkhoz, the qualifications of the personnel and the art of production are more advanced, and

they are better provided with information. These circumstances are necessary for conducting agriculture with the most progressive methods. To transform a farm that was operating at a loss into a plant agricultural shop is essentially changing patronage assistance over to a planned basis.

In those cases when the city dwellers help rural areas only during harvest time, apparently, they should conduct the work on the basis of economic agreements or agreements between the patronage organizations and the kolkhozes and sovkhozes. They should clearly stipulate the kinds and times of the work and the rights and responsibilities of both interested parties. Such agreements should have the force of law and should stipulate the material responsibility of both parties in the event that they are violated.

In Moldavia certain oblasts and farms have learned to utilize the city dwellers at harvest time without detriment to the industrial enterprises. They work in harvesting orchards, gardens and the fields of vacationers and pensioners. The people go willingly since, as distinct from patrons, they are materially motivated. Frequently in addition to monetary payment they receive physical payment.

But again, such practice needs to be legitimized. For the majority of city dwellers do not suspect that they can augment the family budget on the neighboring sovkhoz or kolkhoz. Perhaps the gorispolkoms should introduce a bureau for temporary labor placement. The farms could post announcements here and people could learn about working conditions and wages.

In our economic system, where any kind of activity is reflected in carefully developed plans, essentially no attention is given to such a complicated and large-scale phenomenon as the city's patronage of the country. Yes, this is guided and directed, but it will still be independent until labor expenditures and funds are reflected in the plans.

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IMPORTANCE OF PRIVATE PLOTS IN UKRAINIAN FOOD COMPLEX

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 1, Jan 83 pp 55-60

Article by M. Garbuz, deputy chief of a department of Gosplan for the UkSSR, V. Poshivaylo and M. Chirchenko, chiefs of sub-departments of Gosplan for the UkSSR: "Private Plots -- An Important Component of the Food Complex"/

Text During all stages of socialist construction, concern for man and for creating more favorable conditions for his comprehensive and harmonious development of his personality have been the object of attention by the Communist Party and the Soviet State. For the 1980's, the 26th CPSU Congress approved a broad program for improving the well-being of the Soviet people, one in which priority attention was given to the large scale task of improving the supply of food goods for our country's population.

For the purpose of solving this task and based upon the initiative of L.I. Brezhnev, the USSR food program for the period up to 1990 was approved by the May (1982) Plenum of the CPSU Central Committee. The goal of this program is to supply the country's population with food products in a reliable manner and as rapidly as possible; this is viewed as being both a priority economic and a vital socio-political task.

A decisive role in increasing the production of agricultural products will be played by the kolkhozes and sovkhozes, with an accelerated intensification of their production operations in the future continuing to be the principal direction to be followed for developing the branch. At the same time, considerable attention is being given to the private plots of citizens and also to collective horticulture and gardening with regard to supplementing the food resources.

The following statement was made during the 26th CPSU Congress: "The foundation for socialist agriculture has been and continues to be the kolkhozes and sovkhozes. But this is by no means meant to imply that we can neglect the potential of the private plots. Experience underscores the fact that these plots can provide substantial assistance in the production of meat, milk and some other products. The orchards, gardens, poultry and livestock which belong to the workers constitute a part of our overall wealth."

As is known, the private plots of the population, which are secondary in nature, were created together with public production at the time the kolkhozes

were organized and they are viewed as an additional source for obtaining agricultural products. In the process, the Model Regulations for an agricultural artel defined the dimensions for the private plots and also the number of livestock and poultry that could be maintained in a kolkhoz farmyard.

The manual and office workers of sovkhoses and other state agricultural enterprises are also authorized to have private plots. They are operated on the basis of socialist ownership and yet the chief source of income for their owners is that larger portion of work which they perform on the fields and farms of kolkhoses and sovkhoses.

In connection with the development of the rural farmyards, great importance is attached to the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Additional Measures for Increasing the Production of Agricultural Products on the Private Plots of Citizens" (1981). In it, attention is focused on providing the private plots with maximum support and ensuring that they receive all types of assistance from the public farms -- equipment for use in tilling the private plots, constructing outbuildings and for carrying out other work. In the process, it was recommended that the kolkhoses, sovkhoses and other agricultural enterprises provide those kolkhoz members, manual and office workers and other citizens who concluded agreements with farms and with organizations of consumer cooperation for the production of animal husbandry products, with additional tracts of land for the growing of forage crops -- using both private plot land and (when necessary) land which is temporarily not being used by the farms. It should also be noted that kolkhoses, sovkhoses and other agricultural enterprises, with the consent of the professional trade union committee, are authorized to use the resources of economic incentive funds for repaying up to 50 percent of the credit extended for acquiring cows and heifers to manual and office workers who perform in a conscientious manner at these enterprises, to teachers and doctors who work and live on their territories and to pensioners who worked for a long period of time at the mentioned enterprises. For the purpose of increasing the interest of young families in creating and developing private plots, the sovkhoses and other state agricultural enterprises are authorized to provide them free of charge, at the expense of the farms, with young livestock and to furnish assistance in the construction of farm outbuildings -- on the condition that the members of these families work at the enterprises in question.

For the purpose of raising the interest of citizens in selling agricultural products to the organizations of consumer cooperation, the Ukrainian Ministry of Trade uses the republic's general market funds for providing Ukoopsoyuz with construction materials, small automobiles, motorcycles, sewing and washing machines, electrical saws, carpets, sheepskin and fur products, knitted goods and other products for which there is a high demand, for sale to the suppliers of meat and dairy products.

Taking into account the great importance being attached to payments in kind for developing the private plots and expanding the potential of the kolkhoz market, the May (1982) Plenum of the CPSU Central Committee called for up to 15 percent of the grain grown over and above the plan to be issued to the workers of brigades and teams engaged in the cultivation of grain crops. In

addition, the plans call for grain to be issued in the form of wages to all permanent agricultural workers and also to those citizens who join in harvesting the crops. Sovkhoz workers and also other citizens who participated in the cultivation and harvesting of potatoes, vegetables, fruit, berries, grapes and melon and forage crops are authorized to receive up to 15 percent of the output obtained in accordance with the plan. The same holds true for products obtained over and above the plan, with the proportion to be issued in the form of payment in kind to be determined at the discretion of the farms. It has been recommended that the kolkhozes employ the same system of payments for agricultural labor performed on the LPKh's /private plots/.

The data cited testifies to the fact that the Communist Party and Soviet Government are constantly devoting a great amount of attention to solving the problems concerned with developing the private plots of the population and creating a social climate in all areas under which the members of kolkhozes, manual and office workers and other citizens would come to feel that they are performing useful state work by raising livestock and poultry on their private plots and engaging in gardening and horticulture.

The development and implementation of a number of measures for further developing the private plots and collective horticulture and gardening have played a positive role. The oblast executive committees and various ministries and departments have concerned themselves with this problem, a socialist competition has been launched on an extensive scale and valuable initiative is being displayed by individual village soviets of people's deputies, farms and procurement organizations with regard to utilizing the reserves that are available for increasing the production and procurements of agricultural products. In the Ukrainian SSR, private plots are being maintained by approximately 9 million families (including more than 7 million in rural areas), with 2.5 million hectares or almost 6 percent of all of the republic's land being used for this purpose. The members of kolkhozes, for example, satisfy by means of their private plots 95 percent of their requirements for potatoes, almost 80 percent of their meat and milk requirements and practically 100 percent of their vegetable requirements.

At the present time, the private plots of kolkhoz members and manual and office workers in the Ukrainian SSR occupy an important place in the economic development of the republic's national economy and in supplying city and rural workers with food products. The gross output volume produced in this sector increased by 3.5 percent during 1981 (compared to 1970). The production specialization of the private plots is mainly animal husbandry. Thus, in 1981 the proportion of animal husbandry products compared to the gross output of the LPKh's was 64 percent (compared to 51 percent in the public sector). On the average, during the years of the 10th Five-Year Plan, 67 percent of the overall (at all categories of farms) production of potatoes, 25 percent of the vegetables, 57 percent of the fruit, 31.5 percent of the meat (in live weight) 27 percent of the milk and 42.5 percent of the eggs were produced on the private plots of citizens, that is, these plots are making an appreciable contribution towards the creation of our republic's food resources.

During 1981 (compared to 1980) the number of hogs on private plots of the population of the UkSSR increased by 7.6 percent, sheep and goats -- by 7.9

and poultry (of all types) -- by 1.2 percent. The greatest increase in the number of animals on these plots was observed in the Crimean Oblast: for large-horned cattle the increase was 12 percent (including for cows -- 7 percent), hogs -- 14 percent and for sheep and goats -- 31 percent. A considerable increase took place in the number of livestock on the private plots of inhabitants of Kherson, Donetsk, Nikolayev, Transcarpathian and Odessa Oblasts. During the first year of the current five-year plan, the kolkhozes and sovkhoses procured 179 kg of milk for each cow maintained on the private plots of citizens of our republic. For Ternopol Oblast this indicator was 290 kg, for Lvov -- 268, for Chernigov -- 243 and for Kiev Oblast -- 238 kg. An average of 2.7 kg of wool was procured for each sheep maintained on the private plots of the population in the UkSSR and the figure was considerably greater for Volyn, Poltava, Lvov, Kherson and Nikolayev Oblasts.

One decisive condition for increasing the production of meat on the private plots is that of ensuring that the latter are able to purchase young pigs from the kolkhozes and sovkhoses. As a rule, such sales are advantageous to both sides participating in these purchase-sales arrangements. Thus, specialized hog raising farms have been organized for this purpose in many instances. Quite often the young pigs are made available on a planned basis and according to an established schedule for sale to populated points, with the requirements of the inhabitants of these points being taken into account. Thus, more than 5 million young pigs were sold during 1981, or 1.5 times more than in 1975 and 15 percent more than in 1980. In the rural areas of the Ukraine, their sales per family were as follows: in 1975 -- 0.44 head, in 1977 -- 0.56, in 1980 -- 0.66 and in 1981 -- 0.75 head. Moreover, in Nikolayev, Poltava, Donetsk and Kherson Oblasts, 124-152 young pigs are being sold for every 100 plots.

At the present time, an efficient system has been developed in a majority of the oblasts in our republic for collecting the requests of kolkhoz members and sovkhos workers for chicks and young waterfowl, with the deliveries of these animals also being organized. On many farms this problem is constantly receiving the attention of the administration, the professional trade union organizations of the kolkhozes and sovkhoses and the village and settlement soviets of people's deputies. As a result, the number of young poultry being sold to the population is increasing annually. Thus this indicator was 190 million in 1981, with 27 head per family -- more than the figure for 1975 by a factor of 1.3.

A stable and guaranteed supply of feed for the livestock being maintained on a private basis by kolkhoz members, sovkhos workers and other rural residents is making it possible not only to prevent a reduction in their number but in fact it is even bringing about an increase. Experience accumulated in the Ukrainian SSR testifies to the fact that this problem should be solved by constantly allocating feed resources from the public farms and also through the use of all possible forms of participation by the rural population in developing the kolkhoz and sovkhos feed bases. Moreover, the forms for such participation vary greatly depending upon the specific zonal conditions.

Thus, in the forest district the practice is followed of assigning tracts of haying land to the owners of livestock for a number of years. In addition,

use is made in this zone, for hay procurement purposes, of land from the state forestry fund -- upon the condition, certainly, that the work required for improving the lands and forest tracts used by the population is carried out. In the forest steppe and steppe zones, the citizens are furnished with assistance in acquiring coarse and succulent feeds and also grain waste products. On many farms, extensive use is made of payments in kind for the cultivation of labor-intensive forage crops. Thus, for example, individual families are assigned a portion of the fodder beet sowings, after which, in addition to the established and usual payment, they are issued a definite percentage of the yield of this crop cultivated and harvested by them.

The efficient management of the private plots of citizens is greatly dependent upon daily concern being displayed for them by the kolkhozes and sovkhoses and upon the use of various forms for combining the public and private sectors in agriculture. Such collaboration in the Ukrainian SSR has been manifested in the form of cooperation, the initiators of which are Tatarbunarskiy and other rayons in Odessa Oblast.

The Kolkhoz imeni Kutuzov -- an economically strong farm -- was one of the first in the mentioned rayon to employ cooperation between the public and private sectors. Initially, a plan was developed here for an agreement and obligations between the parties involved and extensive explanatory work was conducted among the population. At a general meeting of the kolkhoz members, a decision was made to increase sharply the number of geese being maintained on the private plots, with feed being provided by the kolkhoz. In early 1979, 280 rural plots (or one fourth of the inhabitants) concluded an agreement with the kolkhoz for the raising of geese on a cooperative basis. The Belaya family, consisting of five members, actively joined in this new endeavor: in 1979 it concluded an agreement for the maturing of 600 geese, which it fattened and turned over to the state in a rapid manner, thus earning 1,700 rubles; in 1980 this family raised 1,000 geese and the following year -- more than 3,000. It bears mentioning that in accordance with the agreement 70 percent of the animals raised on the LPKh are turned over to the kolkhoz, with 30 percent being retained by the kolkhoz members in the form of payments in kind.

Whereas earlier agreements were concluded in the rayon mainly for the raising of poultry, at the present time more and more of the rural residents are raising hogs, goats, rabbits and cows on their private plots. There are families which are maintaining 3-4 hogs and several young bulls on a cooperative basis.

This valuable initiative is being followed in other rayons in Odessa Oblast. And at the present time kolkhozes and sovkhoses in all oblasts of our republic have accumulated experience in cooperating with the private plots of the population. It is being carried out based upon a standard agreement approved in early 1981 by the USSR Ministry of Agriculture, one which has been unified for all of the republics. It is stipulated in the appropriate normative documents that the agricultural products procured on the basis of these agreements and sold to the state are credited to the farms in their production volumes and towards fulfillment of the procurement plan established for them, with payments of the prevailing bonuses.

As a result of cooperation with the LPKh's, the kolkhozes and sovkhoses are realizing economies in both resources and time, which otherwise would have been used for the construction of new livestock facilities, the duration of the livestock raising and fattening operations is being reduced considerably and the production of animal husbandry products is being intensified within a relatively short period of time.

In 1981, approximately 557,000 agreements were concluded with the population of the Ukrainian SSR for the raising of livestock and poultry belonging to kolkhozes, sovkhoses and inter-farm enterprises. The following numbers of livestock were raised at LPKh's of citizens: 514,000 head of public large-horned cattle, 54,000 hogs and 69,000 head of young poultry. The initial weight of the large-horned cattle was 121 and that for the hogs -- 21 kg and following maturing by the population their live weights reached 304 and 121 kg respectively. The largest number of public livestock were fattened on private plots of the population in Volyn (89,000), Lvov (64,000), Vinnitsa (42,000), Ternopol (40,000) and Rovno (more than 38,000) Oblasts. The largest number of hogs was fattened on the LPKh's of residents of Odessa Oblast -- 14,100, or almost one third of all hogs fattened in this manner throughout the republic and more than 36 percent of all poultry turned over for fattening to the population of the Ukraine from the public farms. A large quantity of poultry belonging to kolkhozes and sovkhoses was fattened on the basis of agreements on the private plots of residents of Kherson Oblast.

A great amount of work is being carried out in the Transcarpathian Oblast in connection with the development of the LPKh's of the population and the sale of agricultural products to the state which were grown on these plots. For example, the administration of the Kolkhoz imeni Gor'kiy in Uzhgorodskiy Rayon in this same oblast approved specific measures for developing the private plots of its residents. If they so desire, each one of them can accept a young bull or heifer (live weight of 50-70 kg) for his plot and obtain a weight increase of 370-380 kg from it. For this purpose, the owner of the LPKh is issued 7 quintals of mixed feed, hay, straw and fodder beets free of charge. He is also assigned a definite area for the sowing of a valuable animal husbandry crop, which he tills and for which he receives 20 percent of the crop. During productive years this amounts to 8-9 tons of beets for each plot. In addition, 0.3 hectares of pasture land located along reclamation canals on lands of the farm are allocated for each head of large-horned cattle being fattened on the private plots. The kolkhoz applies mineral fertilizers to these pastures and provides seed for sowing perennial grasses on them.

At the Kolkhoz imeni Gor'kiy, concern is displayed not only for the production of meat: here the acceptance of surplus milk from the population is organized in an efficient manner. Each individual who furnished more than 200 kg of this product receives mixed feed from the kolkhoz's resources. In order to take into account the quality of the milk being received from the various plots, the kolkhoz decided to assign a special laboratory worker for the purpose of carrying out sampling analyses. The payments for the milk are differentiated depending upon its fat content and purity. During the past few years, owing to the development of the private plots, the kolkhoz has over-fulfilled to a considerable degree its plans for selling milk and meat to the state.

A fine tradition has developed in the village of Tartak in Chechel'nitskiy Rayon in Vinnitsa Oblast. Those individuals who sell 300 or more kg of milk during a year's time are supplied with from 2 to 4 tons of pulp residue or mixed and coarse feed; those who sell 700 kg of milk are provided with construction materials ahead of schedule and those who turn over 1,000 or more kg of milk are entitled to obtain products which are in scarce supply ahead of schedule. Such stimuli are being employed in each populated point.

Rabbit breeding is playing a notable role in increasing the production of meat. In addition, this "small branch" serves as a source for obtaining cheap raw material for the light industry. The efficient management of subsidiary rabbit raising operations is solving another important problem -- providing employment for the population. In 1981, on the private plots of citizens of the Ukrainian SSR, 38.8 million rabbits (or 1.6 million more than in 1980) were raised, 129,000 tons of rabbit meat (in live weight) were sold (4,100 tons more than in 1980) and 28.7 million rabbit pelts were sold (or 1.6 million more than in 1980). By the end of 1981, there were 1.68 million does being maintained on the private plots of the population.

At the beginning of 1982, our republic numbered 1.03 million members of societies of amateur rabbit breeders, including 252,000 young naturalists. At the same time, appropriate work was carried out in connection with improving the organization of rabbit product procurements and developing the resources for such work. In 1981 there were 500 fixed and 75 mobile rabbit slaughtering points engaged in the procurement and processing of rabbits. More than 10,000 tons (in live weight) of rabbit meat were procured for satisfying the requirements of the cooperative trade and public catering and also for processing into canned goods. Cooperative organizations in Kirovograd, Sumy and Kharkov Oblasts procured from the population and delivered to enterprises of the biological industry 1.03 million 2-3 day old baby rabbits.

In 1981 the state procurements of rabbits from citizens of the UkSSR amounted to 14,500 tons, with the greatest amounts being procured in Sumy (2,049 tons), Kharkov (2,021), Cherkassy (1,841) and Poltava (1,801 tons) Oblasts. The cooperative organizations procured 28.7 million rabbit pelts from the population, including more than 3.6 million in Kharkov Oblast (or 109 percent of the established task).

For the purpose of expanding amateur rabbit breeding operations, more than 421,000 pedigree rabbits, approximately 500,000 square meters of metal zinc-lined screening, 56,000 metal collapsible cages for rabbits and 74,000 tons of concentrated feed were sold to residents of our republic.

The experience of the best rabbit breeders in Voroshilovgrad Oblast warrants attention. For example, L.A. Naumov of the village of Shul'ginka in Starobel'skiy Rayon, who works as a blacksmith at a kolkhoz, his wife who works on a farm and his son and daughter who are middle school students, each year raise 800 or more rabbits on their private plot. During 1979 and 1980, this working family sold more than 1,000 rabbits or 3.5 tons of rabbit meat (in dressed weight) to the state, for which reason it was sold a motorcycle with carriage ahead of schedule. A foreman at the Voroshilovgrad-Teplovoy Production Association, I.S. Sushkov, has been the recipient of a considerable

amount of praise: each year he fattens up to 500 rabbits on his rabbit farm, after which he sells more than 100 to the state while keeping his family fully supplied with dietetic meat.

Considerable importance is attached to the fact that recently in the UkSSR a great amount of attention has been given to the problem of building sheltered kolkhoz markets: during 1981 alone, such markets commenced operations in Zhdanov (Donetsk Oblast), Zhitomir, Tokmak (Zaporozhye Oblast), Krasnoperekopsk (Crimea Oblast) and in Odessa.

Thus, work carried out in our republic in connection with the further development of private plots of the population and the results realized from such work serve to underscore their importance. However, it bears mentioning that by no means is full use being made of the potential and reserves available for carrying out this work.

Many reserves are available for increasing the production of agricultural products on the private plots of citizens and the complete use of these reserves requires efficient work on the part of the appropriate ministries and departments. When solving this problem, all of its many aspects are important. It was precisely for this reason that L.I. Brezhnev passed along the following comment in his book "Tselina" /The Virgin Land/: "A chief concern of ours with regard to the virgin lands has been millions of hectares and billions of poods, but we must aid the people in acquiring private plots, livestock and poultry. If this is not done, we will not see the millions or billions. A rural resident without a yard is like a tree without roots."

Unfortunately, at the present time a considerable number of the rural yards are not maintaining wither cows, hogs or poultry. Analysis reveals that in early 1982 the number of large-horned cattle on this category of farms was 11 percent less than the figure for 1976, including cows -- 11.6 percent less. There are only 10-15 cows for every 100 hectares of agricultural land allocated for use as private plots of the population in the Crimean, Donetsk, Odessa and other oblasts. In some oblasts, no growth is being observed in the number of hogs, sheep and goats being raised by the population. Moreover, the requirements of those citizens operating private plots for brood stock, young pigs, young waterfowl and pedigree rabbits are not being satisfied adequately.

Such a status of affairs has produced a situation wherein some rural residents are not participating in the production of meat, milk, eggs or other agricultural products, but rather they have become consumers of state resources. Beyond any doubt, a comprehensive and thorough study must be undertaken of such phenomena in each specific instance and the necessary measures undertaken immediately to eliminate the shortcomings noted.

As a result of the growth in the income of rural residents, annual improvements are taking place both in their standard of living and in the availability of high calorie food products. Thus, compared to 1960 when each kolkhoz member consumed an average of 34 kg of meat, 222 kg of milk and 139 eggs, by 1980 these indicators had reached 56.4, 324 and 270 respectively, that is, increases of 66, 46 and 94 percent respectively had taken place. In the process, it should be noted that the increase in the population's consumption

of food products is taking place not only as a result of production on the private plots (this applies especially to meat), but also owing to food purchases at state and cooperative prices. Compared to the 1960's when 94 percent of the meat consumed by kolkhoz members was produced on private plots, in the 1980's this figure dropped to almost 80 percent.

Taking this status of affairs into account, all required measures must be undertaken to promote an increase in the production of animal husbandry products on the private plots of the population. In particular, this ideally calls for a further expansion in the use in the Ukrainian SSR of a particular form of collaboration between public and private agricultural production -- agricultural enterprises transferring livestock and poultry over to the private plots of citizens for raising and fattening on a contractual basis.

Difficulties in acquiring feed constitute the principal reason for the reduction in the number of livestock being maintained by the families of kolkhoz members, sovkhoz workers and other residents. Over the past 2 years, the volumes of coarse and succulent feed made available to the population in Voroshilovgrad, Klarkov and a number of other oblasts amounted to only 15-30 percent of the plan. As a result, the number of livestock in the private sector in these oblasts is decreasing annually. At the same time, the experience of Kherson, Dnepropetrovsk and Donetsk Oblasts, which operate under practically the same conditions as the above-mentioned oblasts, indicates that this need not be the case.

Improvements are also required in the organization of trade practices for those agricultural products procured from the population in return for concentrated feed, which are not always sold in the correct manner by the organizations of Minmyasomolprom /Ministry of the Meat and Dairy Industry/ of the UkSSR, allowing them to be used for other than their original purpose.

Ideally, an attempt should also be made in all areas to restore those small farms which were unjustifiably eliminated earlier at kolkhozes and sovkhozes, one of the chief tasks of which was to supply young pigs for the private plots of citizens residing on the given territory.

Quite often, owing to insufficient concern being displayed by the farm leaders for increasing the number of livestock being raised on the private plots of the population, the credits extended to the population for acquiring cows and heifers are not utilized fully.

Deserving of mention also is the inefficient work being performed by the rural trade organizations. Interruptions are occurring in the deliveries of orchard and garden implements, polyethylene film and other products. At times, there are even shortages in shovels, rakes, watering cans and many other items. In addition, the industrial ministries are still not creating sufficient suitable or diverse types of equipment for the private plots and they are not even fulfilling their established tasks for their production.

A persistent need exists for solving a number of logistical supply problems for the LPKh's of citizens. Indeed, there are not enough centrifuges, instruments for determining the fat content of milk, scales or refrigeration

equipment available for equipping dairy points for accepting milk from the population. The farms are even experiencing difficulties in acquiring milk cans, milk pails, separators and strainers.

In view of the fact that under domestic conditions there is a great amount of manual labor to be performed, the agricultural labor at LPKh's must be eased through the mechanization of labor-intensive processes. This requires organizing the production for individual customers of rabbit cages, feeding troughs for hogs and also an increase in the production of mowing machines, straw and root cutters, miniature incubators, milking units, butter churns and other items of light mechanization. Ideally a competition should be announced for the development and creation of the best mechanisms for the domestic economy.

The land areas assigned to kolkhozes and sovkhoses provide feed for the public herd and for the livestock being maintained on a private basis by kolkhoz members and sovkhos manual and office workers. The cooperation of farms with the population, in the production of animal husbandry products, serves to strengthen still further the bond existing between them. At the same time, the accounting and planning for the production of agricultural products are carried out separately by both sectors. It is our opinion that all of the fattened livestock and all products obtained from lands assigned to public farms should ideally be taken into account. Beyond any doubt, a single procurement plan would create greater interest in developing not only public agricultural production but also the private plots of the population.

One strong reserve for increasing the production of agricultural products lies in improving the use of those tracts of land assigned to citizens. Unfortunately, incidents of improper use of this land by them are not isolated. Thus the experience, for example, of the Belozerskiy Village Soviet of People's Deputies in Vasil'yevskiy Rayon in Zaporozhye Oblast, which registered all of the unused land areas (including on private plots), as a result of which the population was provided with more than 900 additional hectares of land, is deserving of a great amount of attention and extensive dissemination.

It has not yet become an annual tradition in all areas to hold rural gatherings where thorough discussions can take place on the status of and problems associated with the development of the private plots of citizens or where obligations can be undertaken for the sale of surplus agricultural products produced on these plots to the state.

A considerable portion of the population of our republic engages in horticulture and gardening work: 425,400 families are presently engaging in horticulture and 531,500 families in gardening. More than 65,000 hectares of land are being used for collective orchards and gardens in the Ukrainian SSR.

Such a phenomenon is of great social value, since this portion of the population grows gardening and orchard crops and also flowers, while combining labor with active recreation.

The private plots of the population appear as an important component part of the food complex. Thus the soviets of people's deputies in our republic and

the ministries and departments are performing active work associated with placing all available reserves and opportunities in operation and transforming the rural farmyards, as rapidly as possible, into a reliable source for augmenting the state resources of agricultural products.

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AGRO-ECONOMICS AND ORGANIZATION

UTILIZATION OF PRIVATE PLOT POTENTIAL IN RAPO SYSTEM

Moscow SEL'SKAYA ZHIZN' in Russian 22 Feb 83 p 2

/Article by O. Tsomaya, chairman of the Abashskiy Rayon Agroindustrial Association: "On A Cooperative Basis"/

/Text/ I do not wish to discuss in detail the activities of the Abashskiy RAPO /rayon agro-industrial association/, the foundation for which was established back in 1974 by the country's well known "Abashskiy experiment." I will mention only that during the years that the association has been in operation the economic development of Abashskiy Rayon, formerly one of the most backward rayons in Georgia, has been recognized in the form of eight challenge red banners of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee. During the 10th Five-Year Plan the average annual volume of agricultural output here increased by 57 percent above the figure for the previous five-year plan and the cropping power of the principal agricultural crop -- corn -- increased from 23.4 to 44.4 quintals. During the 1976-1980 period, the plan for selling grain to the state was fulfilled by 167 percent and 988 tons of meat and 970 tons of milk were sold over and above the plan.

Work is proceeding very well at the present time. Last year the plans for procuring grain, meat, milk, tea, vegetables and other agricultural products were over-fulfilled and 508 tons of meat and 709 tons of milk were sold to the state in excess of the plan.

A great amount of work is being carried out in the rayon in connection with implementing the food program. Nor are we forgetting such an important reserve for increasing the production of agricultural products as the private plots of citizens. This is particularly true in view of the fact that this work is carried out without great expenses and produces noticeable results rather quickly.

It goes without saying that the process for producing goods on the private plots of the population cannot and must not be spontaneous in nature. This is why the rational use of the potential afforded by the peasant plots has become an object of special concern for the rayon agroindustrial association. In our opinion, the best form for administering the private plots during a given stage, from the standpoint of a RAPO, is that of cooperation with the public

farms. Abashskiy Rayon has accumulated a considerable amount of practical experience in this regard. We have learned not only how to obtain more products from the plots of the citizens but also how to control the future development of their private plots.

Cooperation in the production of animal husbandry products was begun for the very first time in 1978. During the ensuing years the scope of this work has expanded. At the present time, there are two forms being followed in the rayon for achieving cooperation between the kolkhoz members, manual and office workers, pensioners and other citizens on the one hand and the public farms on the other. One of them calls for the production and sale of pork to the state. A kolkhoz or sovkhoz, on a strictly voluntary basis, concludes with citizens who reside on its territory and who participate conscientiously in public production agreements for the raising of hogs. The farm provides young pigs of weaning age for raising (not more than 50 head) and it makes grain forage available for them at the state prices and at the rate of 4 kg per kg of weight increase. In addition, the farm provides veterinary services for all of the animals and it furnishes assistance to the citizens in the form of transport equipment and construction materials.

For their part, those individuals who are parties to the agreement are obligated to raise and fatten the hogs to a weight of 95 kg or more and then turn them over to the farm. The accounting for the output is carried out according to the state procurement prices, minus the cost of the delivered weight and the feed turned over to the private plot.

In 1982, 3,359 plots participated in such cooperation. They fattened more than 16,200 hogs. The state purchased 1,077 tons of pork, with a portion of the fattened animals being held over for 1983.

The second form of cooperation appeared somewhat later. All-round mechanization in the cultivation of corn -- our principal food crop -- is being employed in all areas. But various types of unsuitable land remain: low-relief tracts, water-logged areas and weedy and neglected lands. How can these lands be made productive, despite the fact that equipment cannot be employed on them? The second form of cooperation, but this time for the production and sale of beef and milk to the state, is making it possible to solve this task. In accordance with the agreement, each plot (last year there were 2,824 of them) is provided with up to one half hectare of land by the public farm for the purpose of obtaining feed. The pre-sowing tilling of this land is carried out by the kolkhoz or sovkhoz and 30 percent of the grain corn obtained is turned over to the public farm, with the remainder of the crop -- grain and corn stalks -- being used for fattening the livestock. The labor expended is paid for at the existing rates. In accordance with the agreement, the cooperator must sell 500 kg of milk and 200 kg of meat to the public farm at the state procurement prices.

Material interest has brought about a sharp increase in cropping power on these tracts. For example, in a conversion for 100 hectares of formerly unsuitable land, the farm receives 1,000 quintals of milk and 400 quintals of meat. This form of cooperation ensured the sale to the state of 572 additional tons of beef and 1,335 tons of milk.

Overall, 6,183 plots, or 66 percent of their total number, participated in cooperation in the rayon in 1982. The state obtained from them 1,650 tons of beef and pork -- almost one half of all of the rayon's meat procurements. In the case of milk, this indicator was approximately 26 percent.

Such cooperation is mutually advantageous to both the public farm and the citizens. It is advantageous to a kolkhoz or sovkhos in view of the fact that the products produced on such a cooperative basis are included in the overall production volume and also towards fulfillment of the state procurement plan. In such instances, the farm receives all of the established bonuses. Last year they amounted to 815,000 rubles. One other factor must be borne in mind: a considerable portion of the rations used for fattening the hogs in accordance with an agreement was produced on the private plot. This made it possible to lower considerably the overall consumption of concentrates. Our computations reveal that for the production of 1,077 tons of pork obtained from citizens who participated in cooperation last year, the kolkhozes and sovkhoses realized a savings of more than 5,700 tons of mixed feed. Here one should also add a savings in large capital investments, which would have been required for the maintenance of these more than 16,000 hogs at a public farm.

Segments of private plots and unsuitable land which were not employed for cooperation purposes, remained unused on the public farms. If this land had been used in an intensive manner, each hectare would have provided the kolkhozes and sovkhoses with 120 rubles of profit. This indicator can still be increased considerably.

All of the above confirms the fact that cooperation, in the absence of large expenditures of monetary and logistical resources, is making it possible to increase the production of goods. However, cement, slate and other construction materials are required for the construction of even the simplest of pigsties. The kolkhozes and sovkhoses are providing the population with assistance in building simple facilities for the raising and fattening of livestock. However, this assistance is not enough. We believe that the republic organs must display more efficiency and industry in searching for the means for improving the supply of those construction materials required by the population.

Thousands of young pigs are required for fattening operations carried out on the basis of agreements. The first active phase of a reproducer available in the rayon, following satisfaction of the requirements of the public farms, furnished 1,100 young pigs last year, although a minimum of 3,500 were required. When the reproducer reaches its planned capability, we will receive up to 20,000 young pigs. But if a further expansion takes place in both public and private animal husbandry operations, even this number will not be sufficient. By way of a solution, we resorted to the following measure. In 1981 the population was supplied with young pigs which were maintained on the balance of public farms, upon the condition that subsequently, of all of the offspring obtained, 11 young pigs would be assigned to a fattening regime in accordance with the agreement, with their remaining pigs becoming the property of the owner free of charge. This practice has continued right up until 1982. In addition, all of the farms in the rayon are building small -- for 50-100 sows -- reproducers, which will make it possible to reduce considerably the shortage in the number of animals undergoing fattening.

But an increase in the production of pork on the basis of agreements is being restrained most of all by a shortage of mixed feed. During the next 2-3 years, we could raise pork production to 3,000-5,000 tons based upon cooperation. But this requires from 12,000 to 20,000 tons of mixed feed.

The assistance which we are receiving from the republic organs is clearly inadequate. It is restraining the potential of cooperation for increasing the production of animal husbandry products.

The foundation for agricultural development in Abashskiy Rayon -- the kolkhozes and sovkhozes -- the economies of which are becoming stronger with each passing year. For it is the public farms that are serving as the determinant factor with regard to achieving further increases in the production of meat, milk and other agricultural products. And that powerful reserve which they placed in operation by means of cooperation with the population must have a strong foundation.

The deputy chairman of the Council of Ministers for the Georgian SSR and chairman of the republic's Inter-departmental Coordination Council for Administering the APK, O. Vardzelashvili, comments upon the article by O. Tsomaya.

In discussing the private plots of citizens and their cooperation with public farms for the production of food products, I wish to emphasize that all work in this regard is being carried out in complete conformity with the 8 January 1981 Decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Additional Measures for Increasing the Production of Agricultural Products on the Private Plots of Citizens." The improvements in the conditions for operating private plots and the incentives for extensive cooperation by this sector with the public farms are producing positive results not only in Abashskiy but also in Makharadzevskiy, Zugdidskiy, Gardabanskiy, Dmanisskiy, Kaspiskiy, Chkhorotskuskii and other rayons.

In discussing this matter, I wish to note that the right to conclude an agreement with a kolkhoz or sovkhoz for the fattening of livestock is by no means available to everyone. Only those who actively participate in public production and also pensioners and disabled workers can engage in such cooperation.

At the present time, various forms and methods for cooperation between public farms and the population are being employed in almost all the regions of Georgia. By the beginning of this current year, more than 100,000 agreements for the production of animal husbandry products had been concluded. Compared to 1981 when more than 5,000 tons of meat and up to 4,500 tons of milk were produced and sold to the state by means of cooperation throughout the republic, in 1982 -- 12,000 and 12,300 tons respectively. Thus an important additional reserve for increasing the production of animal husbandry products has been found and is being employed successfully.

However, there are many problems in this area. Complications exist with regard to supplying the population with young stock for fattening, particularly young pigs and meat chicks. By no means are the existing reproduction farms satisfying these requirements fully. The network of such farms must obviously

be expanded. In particular, old and unused facilities are being adapted for this purpose in a number of areas. The practice of organizing the production of young pigs on plots belonging to the population is deserving of support.

We are of the opinion that the difficulties associated with construction materials can be eased considerably through the creation of production operations in the various areas, which will produce these materials using local raw materials. And here an important role will be played by the RAPO.

With regard to the feed base, more extensive and intensive use must be made of low productivity lands for the production of beef and the productivity of natural haying and pasture lands must be raised. Since the production of beef does not require great expenditures of concentrates, this form of cooperation can be employed considerably more extensively than it is at the present time.

Pork production is an object of special concern. No progress can be realized in the absence of mixed feed and the resources of such feed, as is well known, are limited. In view of the fact that, under cooperation conditions, the fattening of hogs requires considerably less deficit concentrates, we are of the opinion that they should be supplied to the population on a planned basis. Indeed, the experience of Abashskiy Rayon reveals that every 100,000 tons of mixed feed, under cooperation conditions, furnish 20,000-25,000 additional tons of pork.

7026

CSO: 1844/241

AGRO-ECONOMICS AND ORGANIZATION

READER OPINION CRITICAL OF PRIVATE PLOT OPERATIONS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Jan 83 p 3

[Article by L. Luk'yanova: "Subsidize . . . the Subsidiary"]

[Text] Entering the new year, the collective of the editorial staff, like all Soviet people, is summing up the results of last year. And one can note with satisfaction the growing activity of our readers who have appreciably strengthened "feedback": Last year there were many more letters related to political, production and public life, social development and education of the citizens.

One can also note with satisfaction the increased effectiveness of the mail and the publications of the newspapers--the editorial staff received about 10,000 official responses. They tell of serious measures adopted by ministries and departments as well as local agencies in response to critical remarks made in publications and unpublished letters of the readers.

The mail from the past month has been especially clear. It has reflected the nationwide political and labor enthusiasm evoked by the 60th anniversary of the USSR and was marked by fervent support for the party's domestic and foreign policy.

Our traditional survey today is devoted to letters related to increasing the return from private subsidiary farms of citizens.

It would be difficult to think that the private subsidiary farm has any more opponents today. This occupation, of course, is voluntary, but it is advantageous and useful in all respects. But as the editorial mail has shown, there is also an opposing point of view regarding this. And therefore there is a reason to begin the review of letters received in response to the publication of the discussion on the crucial subject "the private farm--a common cause" (14 September 1982) with an angry letter.

"I am personally 'for' the private farms, but against its propaganda," writes V. Trebelev from Krivoy Rog. And one can refer to sociologists: The subsidiary farm impedes the social and cultural development of the individuals because all of the free time is devoted to the land and the business and there is no time for museums, movies and theaters. Moreover, V. Trebelev warns about the following danger: When favorably publicizing the private farm do we not thus, come up against a rebirth of the remnants of private ownership in the consciousness of the worker or employee, are we not driving them to speculation, since they sell the products of their farms on the market at any prices that come into their heads?

What is being suggested? Prohibiting subsidiary farming? Certainly not. Our reader thinks: "Let whoever wants to engage in it, but there is no need to publicize such a farm."

One can hardly agree with this position. Because there should be no "secrets" here. On the contrary, it is necessary to have complete and clear understanding of the rights and responsibilities of the owner of a private subsidiary farm and the assistance he must be rendered by local agencies in keeping with the decisions of the May (1982) Plenum of the CPSU Central Committee.

Much has been written about the advantages of private subsidiary farms and orchard (garden) clubs. There is probably no need to repeat the conclusions of their proponents. But certain evaluations that appear in the letters of the readers are extremely interesting.

V. Borisova, the chairman of the garden society of a plant for reinforced concrete items from the city of Nazarovo in Krasnoyarsk Kray writes: "I do not know of a gardener who would work poorly in production or who would be dressed down at meetings for drunkenness and absenteeism. These people are socially active. Does an idler or a drunk really wish to take on more work (and hard work!) in a garden, in addition to his main work? And our gardeners are people with beautiful souls. Through their labor they have transformed abandoned land into gardens. And when the first flowering finally came--the soul rejoiced"

"Only those who are afraid of the land can object to the private farm," asserts N. Cherepanov from Vladivostok, "and also those who naively think that on six-hundredths of a hectare it is possible to raise hundreds of kilograms of vegetables for sale."

"We have six people in the family, including two children," I read in a letter from the Moscow resident Ye. Kletayeva. "All summer we buy neither fruits nor vegetables--we eat our own which have been raised in our garden-orchard plot. We eat it all. There is no surplus because it is necessary to store up for winter. And this is the case with most of my neighbors in the section."

The last case, incidentally, is frequently repeated in many readers' letters and it causes one to wonder: Why are there no surplus products on the private subsidiary farms? Is this good or bad?

The very name "private subsidiary" already reflects the main purpose of such a farm: it supplies extra food for the family table and thus it makes its own strong contribution to the implementation of the Food Program. But if there were surpluses which the owner wanted to sell, this contribution would be even weightier.

Everyone has the right to sell surplus products from his own farm. And, moreover, it is necessary to help the owners of private farms to obtain more products. But here is the question: At what prices should they be sold? Should they be less expensive than in the store? Possibly, but to do this there should be a surplus of fruits, vegetables, flowers, poultry and honey not only on the markets, but also in the stores, and they should be of the best quality. And this rarely happens. Usually the prices on the markets are much higher than state and cooperative prices. And they give rise to discussions about the market "fleecing" the customers, about its corrupting and money-grabbing nature. Certain of our readers, for example, V. Kirova from Saratov and D. Kurbatova from Voronezh, think that the local authorities should control the level of market prices more strictly. This should be done so that the salesman is not driven away from the market and the customer is also defended from being overcharged.

I. Dombrovskiy from Mogilev suggests this measure: It should be permitted to sell on the market only those vegetables and fruits which grow in a given climatic zone. Everything "alien" should be sold only through consumers' cooperation and state trade. N. Stepanenko from Moscow thinks that the randomness of the market can be reduced only by well-organized cooperative trade with a widespread network of receiving and procurement points where it would be possible to send surplus supplies of products. Moreover, during the harvest period these points should be as close as possible to the orchard and garden cooperatives and to the villages. Indeed, consumers' cooperation could come to meet the private subsidiary farm. And not only in purchasing products, but also in organizing trade in goods that are necessary for the owner of the subsidiary farm.

There was not a single letter which did not repeat the same question: "Where to buy . . ." mineral fertilizers, toxic chemicals, manure, lime, a good spade which will not break in half, rakes with solid teeth, mixed feed, literature about gardening and orchard raising seeds . . . such "wheres" are asked by many readers, and they cannot obtain positive answers to their questions from trade organizations. The vacuum between supply and demand is filled with an enterprising "nothing."

"And we buy," the readers admit in their letters, "manure and mineral fertilizers, spades and other equipment from swindlers . . . we understand all this, but where are we supposed to buy these goods honestly?"

Decisions have been made regarding this, but they are carried out slowly and with difficulty. Readers are interested, for example, in whether or not the production of small garden and orchard equipment will be expanded. "I have an orchard, but it has already become difficult to cultivate it," writes N. Rogozin from Arkhangel Oblast. "I would like to cooperate with my neighbors in purchasing a small tractor. I know they are produced by the Kutaisi plant,

but they are not sold anywhere. I also liked a small motorized block with suspended equipment from the Minsk tractor plant, but it is also impossible to purchase this. When will they be available?"

The editorial staff asked A. Yershov, the head engineer of the Soyuzsel'khoztraktor, all-union production association of the Ministry of Agricultural Machine Building to answer this question:

"Such small technical equipment is produced on orders from consumers' cooperation. But there is still an extremely small supply of it, and it is even difficult to give a figure. The all-union production association and the ministry are now taking measures to expand the production of many tractors. We understand how necessary they are. We intend to construct new production capacities at the Kutaisi plant. It will specialize in the production of small mechanisms. In the meantime we are trying to increase the plant's 1983 plan for such tractors."

The majority of owners of private subsidiary farms, orchards and garden plots are city dwellers. They are not very well informed about the wisdom of agrotechnology and agronomy. S. Strel'tsov from Donetsk Oblast complains: "Neither a gardener or an orchard raiser can buy a reference book. And such special literature is necessary. If there were brochures on the practice of raising strawberries or broilers under domestic conditions they would sell like hotcakes. The editions of these are terribly small and the demand for them is increasing as subsidiary farms develop." The readers also write about the need to organize paid courses for gardeners and orchard raisers at enterprises which allot the land for the garden society. The questions are raised correctly. Probably city and oblast ispolkoms of soviets of workers' deputies could organize such assistance for beginning orchard, flower and garden growers.

There is still much that is unclear to owners of private subsidiary farms in their relations with local ispolkoms of soviets of people's deputies. They have not established, for example, the rules for keeping chickens, piglets and large horned cattle in worker's settlements. In some places they permit building sheds for these purposes and in some places they are taken down. Many conflicts like these have been described in the letters from the readers. They have all been sent to the oblispolkoms for consideration.

Certain readers complain that local authorities, when they allot grazing land for private livestock and hayfields, take "payment in kind" in the form of a certain number of tons of prepared hay for public animal husbandry or a certain quantity of cleaned fodder sugar beets. An especially large number of such letters come from Moscow.

In the division for agriculture and procurements of the RSFSR Council of Ministers each case like this has been treated as a direct overstepping of the rights of local authority and a violation of the decisions of the party and government concerning rendering assistance to private subsidiary farms in feed procurements. Conflicts of this kind take place, in particular, because the owners of private farms do not know their rights.

The editorial mail shows an increased interest in the private subsidiary farm. And it is necessary to make sure that this interest does not die. Concern for the development of the private subsidiary farm should be regarded as a matter of statewide importance.

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AGRICULTURAL MACHINERY AND EQUIPMENT

PRODUCTION OF EQUIPMENT FOR PRIVATE PLOTS INCREASING

Minsk SEL'SKAYA GAZETA in Russian 17 Feb 83 p 3

[Article by Yu. Faybishenko: "Machines for Private Plots"]

[Text] In addition to powerful tractors, combines for harvesting grain, beets, corn and potatoes, plows, sowing machines and other agricultural machines, the enterprises of the USSR Ministry of Tractor and Agricultural Machine Building are producing many products for the private plots and for amateur gardeners and horticulturists. Instruments and implements for tilling the soil, for tending flowers and seedlings, for carrying out work in hotbeds, hothouses and glasshouses, field wagons, watering cans, water sprayers and sprinklers, hotbeds and motorized units or, as they are still being referred to, household tractors -- by no means is this a complete list of the products being produced today for the private plots.

"During the 10th Five-Year Plan, we increased the production of these products by more than twofold" stated the chief of the ministry's Production Administration Viktor Chilap, "We intend to continue this policy in the future. Compared to 1981 when the overall value of the goods produced for orchards and gardens amounted to slightly more than 22 million rubles, in 1983 it will reach almost 40 million rubles worth. During the last 2 years alone, approximately 60 types of instruments and small items of mechanized equipment were created at our plants, including a design for a pneumatic drive with a set of pneumatic instruments, electric garden shears and electric pruning shears. The Production Association of the Minsk Tractor Plant is increasing its production of household tractors. At the Gruzsel'mash Scientific Production Association they are developing and this year they will commence the production of a new series of household tractors equipped with mounted and trailing implements and attachments for them. The production of new types of hotbeds made out of polyethylene film on an aluminum framework has also been organized."

"It bears mentioning" continued V. Chilap, "that more than 460 enterprises of 70 USSR ministries and departments are engaged in producing orchard and gardening implements for the private plots. Our ministry is the leading one in this production. We are carrying out a unified technical program aimed at developing new types of light mechanization equipment, instruments and implements. Each year special design and design-technological bureaus and also the All-Union Scientific-Research Institute of Agricultural Machine Building

not only examine and coordinate the documentation and models for 300 types of products being received from enterprises of all ministries and departments, but it also provides them with the assistance required for mastering the new products. Included in this work are workers attached to the scientific-research institutes for horticulture and viniculture and the All-Union Scientific-Research Institute of Technical Aesthetics. The best models of instruments and implements are made available in the assortment department of one of our bureaus, where the enterprise leaders and specialists are able to familiarize themselves with them and thereafter select certain models for introduction into production operations. The new state all-union standards are promoting improvements in the quality of the products. Thus, over the past 10 years the GOST's /state standard/ for 90 types of products have been revised. In one special design bureau of our ministry there is a department for studying demand. Jointly with representatives of the Central Union of Consumer Societies and the USSR Ministry of Trade, the workers attached to this department determine the nomenclature and hold exhibits on a regular basis of the instruments and implements being produced. This is of assistance in taking into account, in a timely manner, the needs of the customers and in removing from production those products for which there is no longer a demand.

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AGRICULTURAL MACHINERY AND EQUIPMENT

REDUCING EXPENDITURES THROUGH REPAIR, SERVICING OF EQUIPMENT

Moscow SEL'SKAYA ZHIZN' in Russian 16 Feb 83 p 2

/Article by V. Yambayev, candidate of economic sciences and head of a laboratory at the State All-Union Scientific Research Technological Institute for the Repair and Operation of Machine and Tractor Fleets: "With Less Expenditures"/

/Text It is cheaper and better to repair agricultural equipment. Today this is a concern of workers attached to the engineering-technical service for the rural areas. By way of responding to the decisions handed down during the November (1982) Plenum of the CPSU Central Committee, many collectives in the rural areas have undertaken raised obligations with regard to realizing economies in the use of energy resources, spare parts and other logistical resources. What reserves and opportunities do they have at their disposal for accomplishing this?

It is no secret that many workshops and specialized enterprises are experiencing critical shortages in spare parts, especially those which are scarce. And correct action is being taken in those areas where the restoration of worn out parts is being organized and extensive use is being made of such parts in repair production operations.

However, studies carried out at GOSNITI /State All-Union Scientific Research Technological Institute for the Repair and Operation of Machine and Tractor Plants/ and practical experience reveal that the use of restored parts, on the average at workshops of Goskomsel'khoztekhnika and for individual types of tractors and engines, does not exceed 15-20 percent of the overall expenditure of spare parts. Quite often, especially on farms having many equipment defects, parts which still have some service life remaining are discarded prematurely and they are replaced by new parts. This inflates unjustifiably the costs for repair work on tractors and other complicated agricultural machines. Meanwhile, it is completely clear that a thrifty attitude towards the use of spare parts, more complete utilization of their primary service life and the extensive use of restored parts constitute a substantial reserve for realizing economies.

An increase in output production volumes that is achieved on the basis of increased use of installed equipment based upon the shift work system is especially effective with regard to the economic indicators for the repair

work production line. This is borne out, for example, by the experience of the Shchekino Repair Workshop in Tula Oblast, which operates in two shifts. Here the output-capital ratio is almost twice as high as the average for similar enterprises which operate on a single-shift basis. The labor productivity is also 9 percent higher and the overhead expenses, conversely, 16 percent lower.

The true path for raising the efficiency of repair production operations is that of achieving a maximum increase in production capabilities, through the technical re-equipping and modernization of existing workshops and enterprises. Funds allocated for these purposes are compensated on the average three times more rapidly than when similar capabilities are created by means of new construction. The manpower requirements are reduced. The task consists of employing more funds for modernization purposes by increasing considerably their proportion with regard to the overall volume of capital investments.

Thus the modernization and technical re-equipping of a number of enterprises in Zhitomir Oblast, including a workshop of the Zhitomirskiy Raysel'khoztekhnika for the repair of tractor engines, made it possible to raise the annual program for the repair of agricultural equipment by almost twofold. At the Korostenskiy Raysel'khoztekhnika in this same oblast, as a result of modernization of a general purpose workshop, the volume of products produced increased by a factor of almost four and amounted to approximately 1.5 million rubles, as a result of which a savings of almost 1.7 million rubles worth of capital investments was realized compared to new construction. At the Novograd-Volynskiy Motor Repair Plant, as a result of modernization and technical re-equipping, the annual program for repair work was increased from 1,400 engines to 7,000 and output production increased by more than twofold and amounted to 1.3 million rubles. And the result: labor productivity and the output-capital ratio were raised noticeably at these enterprises and the cost of a unit of output decreased.

Improvements in the economic mechanism, in the forms and methods for controlling production and in the introduction of progressive forms of labor organization are providing great opportunities for improving the work of the repair plants and workshops. The example of the Ivano-Frankovsk Repair-Mechanical Plant clearly underscores the positive influence of cost accounting on the principal economic indicators. Although the number of workers here has decreased since the introduction of the new form of labor organization, the gross, commodity and output sales volumes have nevertheless increased by 14.5, 8.4 and 18.9 percent respectively. Labor productivity was raised by more than 15 percent.

The introduction of cost accounting also had a beneficial effect on production operations at workshops in Bronnitsy and Istra in Moscow Oblast, the Vitebsk Motor Repair Plant and a workshop of the Polotskiy Raysel'khoztekhnika in Belorussia, workshops of the Salduskiy and Yelgavskiy Raysel'khoztekhnika's in Latvia and at the Darnitskiy Testing and Experimental Plant in the Ukraine.

The same can be said regarding the introduction of the brigade method of labor organization. The effectiveness of its use at workshops and plants of Goskomsel'khoztekhnika is becoming more and more obvious. Thus the brigade contract employed by the Galichskiy Raysel'khoztekhnika in Ivano-Frankovsk

Oblast literally made it possible to improve noticeably the collective's economic indicators in just a year's time. At a repair workshop for T-150K tractors, the work volume increased by 15.2 percent. The work volumes in an electrical department where the brigade contract is also employed increased by 18.8 percent.

These then are the striking changes that have taken place in just a year's time as a result of the effective use of new economic methods of control.

The USSR Goskomsel'khoztekhnika has a rather well developed and well equipped production base at its disposal. It consists of approximately 340 repair-mechanical plants, more than 3,770 workshops, in excess of 2,380 technical service stations for the tractor pool and motor vehicles and almost 2,900 exchange points. It is fully understandable that such a powerful logistical potential can be employed in an effective and thrifty manner only if production is properly organized and all technological elements work in an efficient manner. And this is the true path to be followed for reducing the cost of repair work on agricultural equipment and raising the quality of such work.

7026

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TILLING AND CROPPING TECHNOLOGY

EFFECT OF CLIMATIC CONDITIONS ON GRAIN YIELD EVALUATED

Sverdlovsk URAL'SKIYE NIVY in Russian No 10, Oct 82 p 39

/Article by A. Danilov, graduate student at the Ural Scientific Research Institute of Water Resources: "Potential Yield of Grain Crops Depending on Climatic Conditions"

/Text An evaluation of the soil and climatic conditions of growth of grain crops by the method of the Institute of Agricultural Meteorology is expressed in units of relative yield. Therefore, subsequently, to designate it, we will use the term "soil and climatic yield resources." According to A. R. Konstantinov's model "climate-soil-harvest," on which this method is based, soil and climatic yield resources are equal to the value of the combined effect of the following factors: climatic conditions of the vegetative period, soil fertility and wintering conditions (for winter crops). An evaluation of the effect of the first two factors on the yield is given for the basic interphase periods.

Maps of average long-term values of moisture soil reserves and of the air temperature and humidity during individual interphase periods were plotted according to the materials contained in the reference literature. The data of soil sections according to the soil density of the 0 ... 100 cm layer were plotted on the section of the soil map corresponding to the type and mechanical composition. The obtained special maps executed on a scale of 1:1500000 were combined with the basic map of the same scale with boundaries of agricultural land and of administrative and agroclimatic regions designated on it. Weighted mean values of the appropriate characteristics were taken from special maps and calculated for every section of agricultural land bound by the limits of an administrative region as a whole, or its part separated by a boundary of an agroclimatic region.

Soil and climatic yield resources were determined for all the rayons and state strain testing plots of Sverdlovsk Oblast. Taking the value of relative yield at a state strain testing plot as a norm, we find the differential evaluation or correction for the soil and climatic conditions of the rated rayon. For example, at the agricultural engineering level of the Alapayevskiy State Strain Testing Plot a winter rye yield 1.0 times as high as at the strain testing plot itself can be attained in Rezhevskiy Rayon, including at the expense of climatic conditions, 1, wintering conditions, 0.99 and soil fertility, 1.07 times. Let us translate relative values into absolute values. According to our forecasts, the average winter rye yield at the Alapayevskiy State Strain Testing Plot in 1981-1985 will be 41 quintals per hectare. For Rezhevskiy Rayon the potential yield of this crop during the current five-year plan is equal to 43.5 quintals per hectare (41 quintals per hectare $\times 1.06 = 43.5$ quintals per hectare). The results of calculations of the potential yield for other crops and rayons is presented in the table (see table).

Table. Potential Yield of Grain Crops in the Subtaiga Zone of the Lowland of Sverdlovsk Oblast, Quintals per Hectare

<u>State Strain Testing Plot, Rayon</u>	<u>Winter Rye</u>	<u>Spring Wheat</u>	<u>Oats</u>	<u>Barley</u>
Alapayevskiy State Strain				
Testing Plot	41.0	41.0	48.0	55.0
Alapayevskiy	46.7	44.3	54.2	56.7
Rezhevskoy	43.5	43.5	49.4	56.1
Artemovskiy	44.7	44.3	50.9	54.5
Slobodoturinskiy	41.4	41.0	49.0	53.9
Tavdinskiy	42.2	42.6	49.9	55.6
Verkhnesaldinskiy	42.2	41.4	52.8	61.0
Prigorodnyy	47.6	41.8	59.3	57.8

Thus, it is possible to draw preliminary conclusions on the advisability of cultivation of a specific grain crop in some rayons. The most favorable conditions for the cultivation of winter rye and oats exist in Prigorodnyy Rayon, of spring wheat, in Alapayevskiy Rayon and of barley in Verkhnesaldinskiy Rayon. Minimal values of the potential yield of winter rye, spring wheat, barley and oats are observed in Kamyshlovskiy, Krasnoufimskiy and Taborinskiy Rayons respectively on territories adjoining Sverdlovsk.

The final recommendations for bringing the structure of sown areas in correspondence with natural conditions can be given by agroclimatologists and economists on the basis of the simplex method of line programming with due regard for economic requirements on the placement of crops.

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MOISTURE ACCUMULATION IN METER SOIL LAYER IN TRANS-URAL AREA URGED

Sverdlovsk URAL'SKIYE NIVY in Russian No 11, Nov 82 pp 23-24

/Article by A. Kryuchkov, candidate of agricultural sciences, Orenburg Scientific Research Institute of Agriculture: "Forecasting Yield in the Dry Steppe Zone of the Orenburg Trans-Ural Area"/

/Text/ The dry steppe zone of the Orenburg Trans-Ural Area is represented mainly by rayons in the eastern zone with the exception of Kvarkenskiy Rayon. This virgin land plays a very important role in the oblast's grain balance. Therefore, it is not difficult to imagine how much better harvesting operations could be organized, volumes of freight transportation and the load on elevator capacities could be planned and a number of other economic problems could be solved if it were known in advance what kind of harvest would be obtained. Of course, this task is very complex, because there are no firm and sure weather forecasts for the entire vegetative period.

However, as investigations show, there are criteria according to which the future harvest can be forecast. Keeping in mind the fact that in the oblast precipitation is considered the main factor determining the harvest, we studied the relationship between the yield of grain crops in Adamovskiy Rayon and the amount of precipitation during the agricultural year, cold period (August-April) and warm period (May-July), as well as between the yield and the reserves of productive moisture in the meter layer during the first 10-day period in May.

According to the Adamovskaya Agrometeorological Station during 21 agricultural years (1958-1978), on the average, 307 mm of rain (minimum, 172 mm; maximum, 468 mm) has fallen here. During the cold period there are 197 mm, or 64 percent of all the precipitation (minimum, 120 mm; maximum, 311 mm). During summer time (May, June and July) plants receive 110 mm of rain (minimum, 37 mm; maximum, 192 mm).

With such moistening the harvest in the rayon ranged from 2.3 to 14.8 quintals per hectare, averaging 8.4 quintals per hectare. A total of 36.5 mm of atmospheric precipitation was expended on the formation of 1 quintal of grain. Nevertheless, as an analysis showed, we did not detect a direct correlation between the amount of atmospheric precipitation during an agricultural year and the yield of grain crops (the correlation coefficient was 0.27 ± 0.22 with $t = -1.2$).

It is characteristic that during years of the highest harvests in the rayon (from 11.5 to 14.8 quintals per hectare) the amount of precipitation was not the biggest (216 ... 376 mm) and the expenditure of atmospheric moisture on the formation of 1 quintal of grain was 22 mm.

A total of 326... 370 mm of rain fell during years with minimal harvests (2.3 ... 3.2 quintals per hectare). Nor did the maximum precipitation (427 ... 468) ensure the highest harvest (5 ... 7.9 quintals per hectare). At the same time, the minimum precipitation (172 mm) differed little (yield of 8.7 quintals per hectare).

The data cited indicate that under the conditions of Adamovskiy Rayon the yield of grain crops is not determined by the amount of atmospheric precipitation and cannot be forecast by this indicator.

A weak ($r=-0.05 \dots -0.34$) and uncertain relationship is observed between the amount of precipitation of the cold and warm period and the yield of grain crops.

It can be stated that there is no direct relationship between the amount of rain and snow and the harvest in the dry steppe zone and these indicators cannot be taken for a forecast of the expected yield. This fact becomes well explainable after the computation of the dependence of the grain yield on the amount of productive moisture in the meter soil layer at the beginning of spring sowing. In fact, according to the data of the Adamovskaya Agrometeorological Station during 1969-1978 the reserves of productive moisture for sowing ranged from 17 to 130 mm and the yield changed from 2.3 to 14.8 quintals per hectare (on the average, 7.6 mm of moisture occurring in the meter soil layer were expended on the formation of 1 quintal of grain).

We established a strong positive correlation between the reserves of productive moisture in the meter soil layer and the yield of grain crops in Adamovskiy Rayon ($r=+0.88$ with $t=5.2$). The determination coefficient is 0.77, that is, in 77 per cent of the cases the yield of grain crops is determined by the moisture reserves in the meter layer.

According to our calculations, the correlation between the yield and the reserves of productive moisture is expressed by the following regression equation:

$$y=2.02+0.10547x,$$

where:

y--yield, quintals per hectare;

x--amount of productive moisture, mm in the meter soil layer during the first 10-day period of May.

A comparison of the actual yield and the yield calculated according to the equation indicated above makes it possible to point to the satisfactory convergence of the results (see table).

Table. Yield of Grain Crops in Adamovskiy Rayon (1969-1978)

Moisture reserve, mm	Yield, Quintals per Hectare		Deviation	
	actual	calculated according to the equation $y=2.02+0.10547x$	quintals per hectare	%
62	7.7	8.6	+0.9	11.7
130	14.8	15.7	+0.9	+6.1
114	14.2	14.0	-0.2	-1.4
67	13.6	9.1	-4.5	-33.1
49	8.7	7.2	-1.5	-17.2
17	2.3	3.8	+1.5	+65.2
87	11.5	11.2	-0.3	-2.6
60	6.5	8.4	+1.9	+29.2
89	9.7	11.4	+1.7	+17.5
115	14.5	14.2	-0.3	-2.1
Average	10.35	10.36	+1.38	
79 mm			-1.36	

Conclusion: With the exception of some years, when other ecological factors have an effect, the expected yield of grain crops in the oblast's dry steppe zone (with a mean error of ± 1.4 quintals per hectare) can be calculated before spring sowing. At the same time, the studied patterns point to the urgent need to intensify the work on moisture accumulation in the meter layer in the fields of this zone.

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FORESTRY AND TIMBER

MEASURES TO INCREASE RSFSR TIMBER INDUSTRY PRODUCTIVITY

Moscow SOVETSKAYA ROSSIYA in Russian 2 Mar 83 p 1

/Article: "Strict Accounting"/

/Text/ Measures have been defined for carrying out the tasks concerned with the hauling of timber during the 1983-1985 period. The RSFSR ministries and departments, the councils of ministers of autonomous republics and the kray and oblast executive committees which carry out timber logging operations have been ordered to develop and implement measures aimed at raising labor productivity and ensuring the fulfillment of the tasks established for the 1983-1985 period: increasing the overall output per worker in timber logging operations, eliminating shortcomings in the work of timber logging enterprises, improving the organization of production and labor, utilizing existing capabilities of the timber logging equipment and in the hauling of wood and developing and implementing measures during the 1983-1985 period for increasing the processing of wood in the regions where it is procured, such that shipments of round timber are reduced to a minimum.

RSFSR Gosplan and RSFSR Gossnab have been tasked, jointly with the RSFSR ministries and departments which carry out timber logging work and with the participation of the USSR State Committee for Forestry and the USSR Ministry of the Timber, Pulp and Paper and Wood Processing Industry, with developing measures which will ensure the complete and rational utilization of local timber raw material resources, in connection with cuttings of primary use, cuttings obtained from tending a forest and sanitary cuttings in oblasts, krays and autonomous republics where there is a scarcity of timber resources.

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